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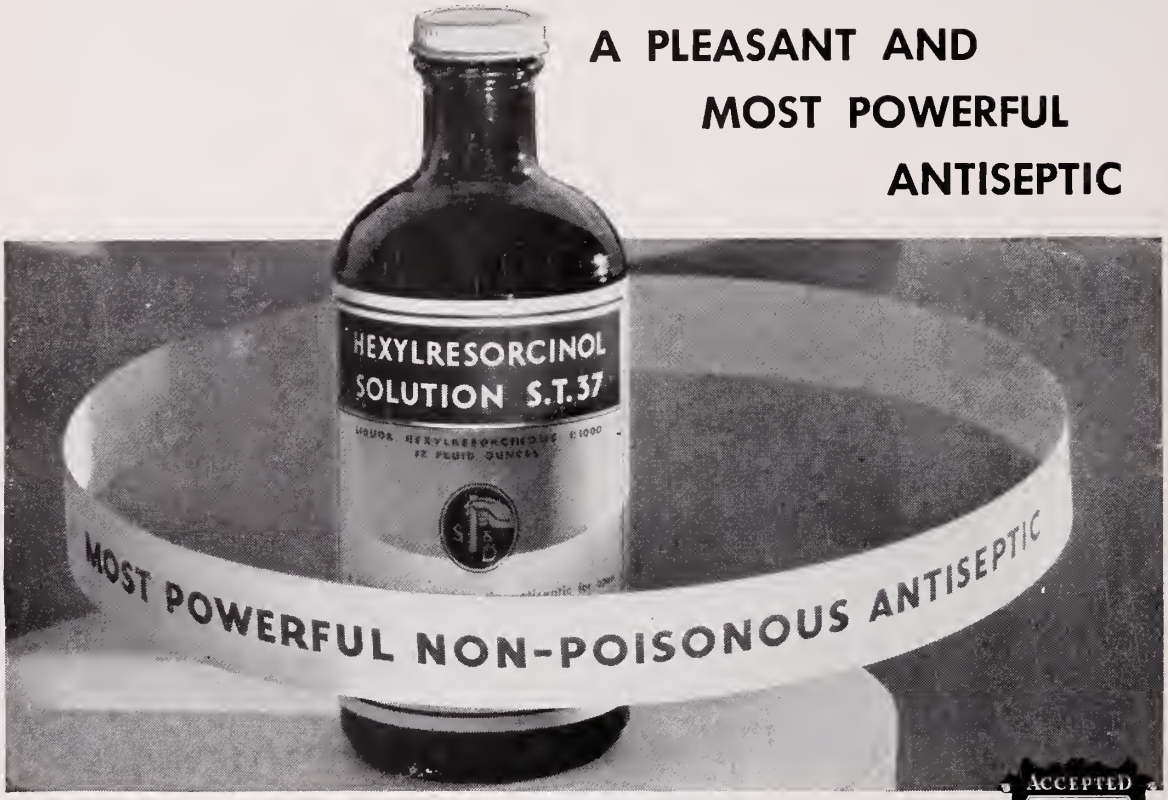

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ORIGINAL ARTICLES

THE MANAGEMENT OF BREECH DELIVERY*

By PAUL APPLETON, M.D., F.A.C.S.
PROVIDENCE, R. I.

There is no obstetrical situation that requires more individual study and judgment, based on a considerable experience, than the management of breech delivery.

The very etiology of the malposition of the foetus whereby it presents as a breech is often unknown, and yet the condition is so often due to abnormality either maternal or foetal implying potential danger, that the obstetrician is confronted with decidedly adverse factors for safe delivery.

There is an old saying that the head will enter the pelvis if it can, and conversely, if the breech presents, there must be ipso facto some cause for failure of normal presentation. That indicates potential danger.

Without going into the discussion as to the factors causing this presentation, let us consider the conduct of the case as we find it when the patient is in active labor.

There is, first of all, the factor of cervical dilatation. Full dilatation of the cervix is the sine qua non of the further progress of delivery. It is absolutely essential and nothing further should be considered or attempted until this has been accomplished, so that the breech may pass into the vagina by normal means. Failure to observe this rule is the origin of much suffering, trauma, and often tragedy, for the breech at best is a poor dilating wedge, and even when it is pushed through the cervix normally, the cervix is then unequivalent to full dilatation for the passage of the head. Still, that is the usual situation as nature gives it to us.

That is the reason for the great difficulty with the after coming head in many cases where manual dilatation and forcible breech extraction is attempted, as after a version.

Again, because of the usual early rupture of the membranes, and the imperfect fit of the breech at the cervical os, plus the proximity of the foetal umbilicus, prolapse of the cord is a common complication, requiring more rapid means of delivery than we would otherwise care to undertake.

So that in almost all of these cases we are confronted with a number of adverse possibilities if not actualities, with antagonistic factors as regards our better judgment of delivery.

There are, of course, two main methods of management open to us. First, leaving the case entirely to nature and taking chances on a possible pinched cord, nuchal position of the arms, imperfect flexion of the head, and incomplete dilatation of the cervix relative to the occipital pole. Second, delivery by operative interference, by a number of different methods, depending upon the foetal attitude, with still the possibility of all of the foregoing factors of danger plus trauma caused by hurry, rough handling, hard pulling from below, hard pushing from above, and perhaps a failure to recognize the forces involved in the normal mechanism.

The first course, that of leaving the matter to nature, has many advantages, especially in multigravidae, providing there is not added disproportion between the size of the foetus and the calibre of the pelvis, no gross deformity of the foetus predisposing to breech presentation, such as hydrocephalus and congenital cystic kidney, or placenta previa in any degree or any of the numerous kinds of possible obstructing tumors.

In the absence of such factors, many of these cases will deliver spontaneously and successfully, and may I here interpolate as a side remark, that there is no phenomenon of obstetrics that commands one's admiration more than to watch the normal mechanism of a spontaneous breech delivery.

In such cases it is presupposed that the patient is having the usual attention as to coaching her to use her accessory forces, for expulsion, the moral support of sympathetic encouragement and an anesthetic appropriate to second stage labor. One must give his undivided attention to the situation with careful and frequent observation of the con-

*Read before the Providence Medical Association, June 6, 1932.

dition of the child as elicited by the foetal heart. One must be ready at any minute to deliver, for a sudden change in the foetal condition allows for no delay.

The disadvantages of this method lie in the fact that though the breach and part of the body may deliver spontaneously, there may be and often is delay or difficulty with the delivery of the arms and head which will result in foetal death. While the doctrine of watchful expectancy is to be followed, it should not be carried to extremes. Foetal distress at any time in the second stage is an absolute indication for interference. One does not know the cause of the distress. More commonly it is a pinched cord, sometimes a short cord with premature detachment of the placenta. Sometimes intercranial hemorrhage over which we have no control.

The second method, of operative delivery at the onset of second stage,—that is, breech extraction, presupposes experience and skill on the part of the operator, and the absence of no contraindicating factors heretofore mentioned. Better a dead foetus and an undamaged mother than a traumatized mother and a living foetus facing a lifetime of incompetence through permanent brain injury, epilepsy or Erb's palsies.

Agreeing with the almost universal disapproval of the indications for version and extraction unfortunately popularized by Dr. Irving Potter of Buffalo, his method of extraction is effective and commendable when extraction is really indicated, if slowly and deliberately carried out.

Both feet are brought down together and the body delivered by lateral flexion as far as the angles of the scapulae. The anterior arm is delivered from under the symphisis, and then, by rotation of the body 180 degrees and slightly over rotating with gentle traction the other arm is also delivered anteriorly. Now with the foetal body lying astride the operator's forearm, and with a finger in the baby's mouth to favor flexion of the head and provide also an air way, combined with pressure from above, the head is gently flexed out over the perineum.

Simple as this seems, there may often be difficulty, especially in the delivery of the after coming head, and whether or not intentionally, too strong pulling from below or too strong pushing from above, will produce serious and permanent brain or nerve lesions in the baby, invalidizing it for life or perhaps producing a more fortunate immediate fatality.

Summarizing what has already been enlarged upon, the most frequently encountered danger and difficulty is with the after-coming head. Left alone to nature, the result is often bad. Delivered manually by the combined method of manual traction and supra pubic pressure the results are equally bad.

The remaining hope, and to my mind the best method, is the use of forceps on the after-coming head, emphasizing with a very profound respect the words of Doctor DeLee, "It is not the forceps but the man behind them that counts." However, the very long handled forceps invented and introduced by Dr. Piper of Philadelphia a few years ago, to a grateful army of obstetricians, for the especial purpose of delivery of the after-coming head, fills a need in this situation with which I personally believe no other forceps can compete.

The virtues of this instrument are many. Thin and semi-flexible, they are easily applied. With a special pelvic and cephalic curve, and long handles, they reach beyond the brim of the pelvis and fall into position on the head without undue difficulty. The leverage produced by traction on the handles, is just right for emphasizing flexion of the head and traction in the correct line of direction, and all without much intercranial squeeze. The head can be delivered rapidly or slowly at will, and restrained as positively as advanced. My own opinion is that this instrument is one of the most useful additions to the armamentarium of operative obstetrics, since the introduction of the Vorhees bag.

Babies delivered with these forceps seem to be much less likely to suffer intercranial hemorrhage than by any other method. There is no chance for injury to the cervical plexus with resulting Erb's palsies. There is no need for introducing the finger into the baby's mouth with possible trauma, and there is no need for suprapubic pressure,—a manoeuver fraught with tremendous danger to the foetal brain and meninges.

In conclusion, my present day attitude on the conduct of breech delivery, and I am sure there are many other obstetricians who can agree with me, is that the majority of cases should be left to nature, up to the complete expulsion of the breech from the perineum, always of course under careful observation of the foetal condition during this part of the second stage. After that, I believe that gentle

manual guidance according to our knowledge of the mechanism normal to breech deliveries, should assist the rotation of the body and extraction of the arms after the manner of Dr. Potter of Buffalo, and finally unless the after-coming head literally falls out, without traction or supra-cubic pressure, Piper forceps should be immediately applied and the head delivered thereby with gentleness and sensible restraint.

Such conclusion is based on a moderate private practice experience with these difficult cases and lately in a rather large hospital service. Of course there is no absolute rule of delivery applicable to all cases, for each presents individual complications, but I am satisfied that in the light of our present knowledge, partial spontaneous delivery, followed by skilful, gentle and practiced operative completion, will give the best results in these trying obstetrical dilemmas.

OMNADIN IN EYE INFECTIONS*
A PRELIMINARY REPORT

By Raymond F. Hacking, M.D.
105 Waterman Street, Providence, R. I.

The use of non-specific proteins as a therapeutic measure seems to have had as its incentive the observation of the beneficial effects accompanying fever during the course of various diseases. Cases have also been observed in which the use of antidiphtheritic serum showed an apparently favorable effect in diseases other than diphtheria. As the direct result of these observations we find, on the one hand, the inoculation with malaria of patients with parasyphilis, and, on the other, the use of numerous forms of foreign protein in the treatment of various diseases, including many affecting the eye.

It is now recognized that fever is not the factor which overcomes the infection as was once thought but that it represents a part of the symptom complex designated as foreign protein shock which also includes a leucocytosis characterized by an increase in mononuclear cells and other changes in the body. These occur following the injection of any foreign protein and the intensity of the reaction varies with the foreign protein used. Peterson has shown that a number of tissue ferments are set free which break up bacteria and their toxins into harmless products. An increase in cell permeability also occurs, by which antibodies more readily penetrate the cells from the blood stream. The whole series of reactions results, according to Peterson, in a keying up of the body's defensive mechanism to the highest possible pitch.

Many agents are being used for their protein content. Among them are whole milk (preferably milk with a high bacterial content), diphtheria antiserum, typhoid-paratyphoid vaccine, autoserum, aolan, lactigen, omnadin, and countless others.

The most recently developed substance of those just mentioned is Omnadin. It is obtainable in 2 c.c. ampoules and consists of a sterile solution of proteins, fats, and lipoids in combination. The protein substances are obtained from the non-pathogenic bacteria B. Mycoides and sarcina; the lipoids, from bile, and the fats, from animal sources. This particular combination is the result of the researches of Professor Much in the field of the non-specific immunity of the body. At first, proteins were considered the sole agents in this role; later, however, it was demonstrated that fats and especially lipoids contribute materially to this beneficial effect.

Omnadin was used in the following cases with results which indicate that it is a therapeutic measure of merit and should be considered, at least, in handling similar conditions.

Case 1. A male, 2 years old, admitted on April 2, 1932, with a diagnosis of scarlet fever. The admission temperature was 103.5. Examination of the eyes showed a very slight conjunctival injection with normal appearing lids. One vial of scarlet fever serum was administered and the temperature dropped to 101.5; a second vial of scarlet fever serum was given with no further drop in temperature. At this time there appeared marked involvement of the right eye consisting of redness and swelling of the lids sufficient to close the eye with only slight injection of the conjunctiva. The left eye appeared to be normal. A diagnosis of cellulitis of the lids was made. In addition to the local treatment which consisted of cold compresses of magnesium sulphate, boric acid irrigations of the eye and the use of White's ointment in the eye, 2 c.c. of omnadin were given intramuscularly daily for three days. The temperature after the first in-

*Read before the Staff Association of the Charles V. Chapin Hospital, June 15, 1932.

jection rose to 102.4 and then dropped to normal within forty-eight hours. The swelling and redness of the lids had almost entirely disappeared at this time and on the following day the eyes appeared normal and all treatment was omitted.

It is impossible to say how much of the improvement could be ascribed to the use of the scarlet fever serum and how much was due to the use of omnadin. The eye condition developed during the use of the serum and the rapid improvement of the eyes coincided with the rapid drop in temperature following the use of omnadin.

Case 2. A female, 5 years old, admitted on March 28, 1932, with a diagnosis of purulent conjunctivitis of both eyes, cellulitis of the lids of both eyes, and an abscess of the upper lid of the right eye. In addition to the local treatment ordered 2 c.c. of omnadin was given intramuscularly daily during the patient's stay in the hospital. The admission temperature was 102.3, which dropped within 24 hours to 100.5, where it remained until April 8th, when it receded to 99, at which time the patient was taken home against advice. Two days after admission there was a marked reduction in the swelling, redness, and secretion of the left eye and the patient was able to open it. The right eye had improved slightly. One week after admission the left eye appeared normal and the right eye could be partially opened. At the time the patient was removed the right eye showed further improvement but some discharge and swelling of the lids remained. The laboratory report showed the infection due to streptococcus hemolyticus.

After the use of omnadin in this case there was a drop in temperature of 1.8 within twenty-four hours and within forty-eight hours there was a marked reduction in the swelling and redness of the lids together with a decrease in the amount of secretion present.

Case 3. A female, 6 years old, admitted on March 1, 1932, with a diagnosis of cellulitis of the lids of the left eye. In addition to the local treatment 2 c.c. of omnadin were given intramuscularly daily for four successive days. The temperature which was 101 on admission rose to 101.8 on the following day and then dropped to 99 twenty-four hours later, from which point it gradually receded to normal. After the second injection of omnadin there was a marked reduction in the swelling and redness of the lids, and on March 5th, four days after admission, the eyes appeared practically normal. The laboratory reported the infection due to streptococcus viridans.

After the use of omnadin there was an initial rise in temperature of 0.8, which dropped 1.8 twenty-four hours later. A marked improvement of the eye occurred at the time the temperature came down and within another forty-eight hours the eye presented a normal appearance.

Case 4. A male, 5½ years old, admitted on January 4, 1932, with a diagnosis of scarlet fever. Six days after admission a cellulitis of the right upper lid developed. Local treatment was instituted immediately but three weeks more elapsed before the patient was able to open his eye. A slight purulent discharge persisted until February 2nd, and the patient was discharged on February 6th, at which time the eye appeared to be normal.

About seven weeks later, on April 8th, the patient was readmitted with a diagnosis of cellulitis of the lids of the right eye and cervical adenitis. In addition to the local treatment, 2 c.c. of omnadin was given intramuscularly daily. Within forty-eight hours the temperature dropped from 103.5 to 100.0 and the lids could be opened slightly. On April 13th, or five days after admission, the lids appeared to be normal and all eye treatments were omitted.

This case is interesting in that clinically the eye condition appeared similar on both admissions. On the first admission only local treatments were used in treating the eyes and a period of three weeks transpired before the eyes presented a normal appearance. Incidentally 6000 units of scarlet fever serum was administered on the first day and again on the second day. On the second admission omnadin was used in addition to the local treatment and within forty-eight hours there was a distinct improvement and five days after admission the eyes appeared normal and remained so during the rest of his stay in the hospital.

It is realized that no conclusions can be drawn from such a small number of cases, but it is interesting to follow the course of the eye involvements described after the use of omnadin and to observe its reactions on the body as a whole. In two cases there was an intial rise in temperature which was very slight, and in all of the cases there was a decrease in temperature to normal or nearly to normal within forty-eight hours. In every case a marked improvement in the eye occurred within this forty-eight-hour period. The cases varied in

age from 2 to 6 years and they were all characterized by the absence of anaphylactic or cumulative effects. When omnadin is used late in the course of a disease it does not exert the beneficial effects observed here; hence, if it is to be used at all it must be used early.

Thus far no deleterious effects have been reported in the use of omnadin in eye infections. Von Szily, however, working with foreign proteins on experimental animals, was able to produce severe inflammatory conditions of the anterior segments of the eye after repeated injections of milk. Using other foreign proteins, he was able to produce choroidal and retinal lesions. The local and general symptoms produced were due, not to the preparations used, but to substances developed by the body reactions to the injections. It would seem from the experimental work mentioned that some of the most common agents used as a source of foreign protein are capable of doing more harm than they are of doing good, and if we have at our disposal a foreign protein which is unattended by such dangers it should come into more general use.

BOOKS—SHALL THEY BE STERILIZED?

By H. E. Smiley, M.D.

Charles V. Chapin Hospital, Providence, R. I.

The question of how to disinfect books that have been in the house of a patient with a communicable disease, whether actually used by the patient or not, is one which health officials are frequently called upon to answer. The experiments cited below were made in an effort to determine a suitable way to handle the situation.

It is impractical to sterilize books in the autoclave. To demonstrate this fact a new book was wrapped in several thicknesses of newspaper and sterilized in the autoclave at 15 pounds pressure for 15 minutes. On removal, the book was found to have its covers warped and its binding loosened; its whole appearance was considerably altered. It would be a ruinous procedure to subject books to this treatment.

Another experiment was tried. Sterile strips of filter paper were saturated with a live broth culture of (a) streptococcus hemolyticus, isolated from a case of scarlet fever and (b) staphylococcus albus, isolated from a boil. These strips were then placed (1) on the outside of a book and (2) between the leaves. The books were then subjected to the various treatments listed below, and at spaced intervals a small piece of each strip was cut off and cultured in broth. The readings indicate the presence or absence of growth at the end of 48 hours incubation.

An analysis of the following table indicates that sterilizing in the drying oven (treatment E), at an approximate temperature of 65° C., is the method of choice when quick sterilizing is desired. As noted in the table, exposure to this temperature for only four days was sufficient to kill the organisms used in the experiment. At lower temperatures a longer period of time was required before the cultures were proven non-viable. The streptococcus proved to be a less hardy organism than the staphylococcus and succumbed more readily. This fact bears out the experience of bacteriologists, who have trouble in keeping alive cultures of streptococci unless they are subcultured frequently and are kept at body temperature. The experiment demonstrates that simply leaving the book in a warm, dry atmosphere for three weeks is sufficient to destroy streptococci (hemolyticus) and, for practical purposes, it seems reasonable to assume that books not grossly contaminated, if left untouched for a few months, would be innocuous and safe to handle.

Rosenau states in his book "Preventive Medicine and Hygiene," that "an effective method for sterilizing books is exposure to formaldehyde gas in a closed chamber at a temperature of approximately 80° C." He states that in his opinion the danger of infection from books is much exaggerated. Dr. Hasseltine of the National Institute of Health, in a memorandum on disinfection of books, states, "There is very little, if any, evidence showing that library workers and attendants contract communicable diseases from books that have been in the environment of cases of communicable disease." He further notes that "books that have been in the home or even in the sick room and have not been used by the patient are believed to be harmless. Formaldehyde fumigation would disinfect the exposed surfaces of such books. However, in recent years such fumigation for the disinfection of rooms and fomites has been abandoned, and there is no reason for believing that a book that has not been used by the patient is any more dangerous

(A) The book was left closed, lying flat on the top of a cabinet at room temperature (approximately 27.5° C)
(B) The book was left closed, lying flat, over a radiator (approximate temperature 50° C)
(C) Same as (B) except that the book was opened and placed on end so that the warm air would penetrate between the leaves more readily
(D) The book was left closed, lying flat, under an electric light (approximate temperature 47° C)
(E) The book was left closed, lying flat in drying oven (approximate temperature 65° C)
(F) The book was left closed, in icebox (approximate temperature 7° C)

			1 Day	2 Days	4 Days	6 Days	12 Days	19 Days	26 Days	34 Days	41 Days
1	A	outside strip Staph.	+	+	+	+	+	—			
2	A	outside strip Strep.	+	+	+	—	—	—			
3	A	inside strip Staph.	+	+	+	+	+	+	+	+	+
4	A	inside strip Strep.	+	+	+	+	+	+	+	+	—
5	B	outside strip Staph.	+	+	+	+	+	—			
6	B	outside strip Strep.	+	+	+	+	+	—			
7	B	inside strip Staph.	+	+	+	+	+	+	—		
8	B	inside strip Strep.	+	+	+	+	—	—			
9	C	outside strip Staph.	+	+	+	+	—	—			
10	C	outside strip Strep.	+	+	—	—	—	—			
11	C	inside strip Staph.	+	+	—	—	—	—			
12	C	inside strip Strep.	+	+	—	—	—	—			
13	D	outside strip Staph.	+	+	—	—	—	—			
14	D	outside strip Strep.	+	—	—	—	—	—			
15	D	inside strip Staph.	+	+	+	+	+	—			
16	D	inside strip Strep.	+	+	+	+	—	—			
17	E	outside strip Staph.	+	+	—	—	—	—			
18	E	outside strip Strep.	+	+	—	—	—	—			
19	E	inside strip Staph.	+	+	—	—	—	—			
20	E	inside strip Strep.	+	+	—	—	—	—			
21	F	inside strip Staph.	+	+	+	+	+	+	+	—	
22	F	inside strip Strep.	+	+	+	+	—	—			

than other inanimate objects existing under the same conditions." He continues, that "books grossly contaminated, unless very rare or valuable, should be destroyed and books used by patients suffering from a communicable disease due to spore forming organisms, such as anthrax, should be destroyed."

It appears from a brief review of the literature that the tenet as to the necessity of sterilizing books has been passed along from writer to writer without any new study being attempted which would tend to modify this belief in the importance of such a procedure. The experiments cited above seem to justify the following conclusions.

1. Hemolytic streptococci, when present on the surface of a book, are no longer viable after three weeks exposure to room temperature, and at higher temperatures are no longer viable after shorter periods of time. Staphylococci are apparently a little more hardy, for they live after exposure to room temperature for a longer time than do the streptococci.

2. Hemolytic streptococci and also staphylococci, upon the leaves of a book, are no longer viable after four days, provided the temperature is 65° C.

3. A safe, general rule appears to be that books, not grossly contaminated, if left untouched in a warm room for a few months are not capable of transmitting infection.

4. Spore-bearing contaminants are not included in this experiment.

THE RHODE ISLAND MEDICAL JOURNAL

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The Rhode Island Medical Journal

Salutes the World

with the Time Honored Greeting

"Happy New Year"

EDITORIALS

REPORT OF THE COMMITTEE ON THE COSTS OF MEDICAL CARE

As only a digest, coupled with certain recommendations, are at hand as we go to press, it might be considered unfair to pass judgment upon the majority report of the Committee on the Costs of Medical Care, as it appears together with the minority report in the *Journal of the A. M. A.*, issue of December 3d, p. 1950, both of which are recommended to the careful consideration of our readers. It is not our purpose to discuss the matter in detail but the majority report as set forth in these recommendations is at such variance with all medical traditions and divergent from customary usages that a "snap-shot" interpretation is permissible.

Let us quote from the majority report:

I

"The Committee recommends that medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists, and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care. The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician."

Again . . . . "The Committee recommends that the costs of medical care be placed on a group payment basis, through the use of insurance, through the use of taxation on, or through the use of both of these methods."

(At this point it is suggested that some well-informed person speak up and give us a definition of Socialism.)

In the text of this report it is suggested that we not only readjust but "reorient" our minds to meet the world's changing conditions and the outlined procedure is altogether indicated if the health of the community is to be elevated and maintained; —that the evils of the people as an aggregate body may be better treated by competent (?) physicians.

It is further implied that we cast aside every thought of free, independent and, let us say, dignified activity and with graceful self-abnegation, merge ourselves, like cogs in the wheel of the machinery of health-building, subscribe to this idealism on human betterment. We are intrigued with the question of just how the culmination and by what process these recommendations are to be brought about and by whom the whole affair is to be administered even if workable. May we look to the Central Government for guidance? Or will the various state legislatures take care (sic) of us? May we expect one or both to do this, or may we entertain the benign hope that it will be neither?

When it comes to disbursing money raised by the way of insurance or by taxation, it is unthinkable that we should be free from some sort of legislative control, or regulation, not to say domination.

When we contemplate the possibilities of this single hazard to free professional activities and another phase, to which the Committee on the Costs of Medical Care has, with paternal solicitude opened the door, for the care of the indigent and the needy and those that are neither—we may turn the shield and read a time worn inscription: "No one was ever yet denied medical care or medical necessities by reason of poverty," and look askance at the majority report.

And furthermore, possibly the people themselves may be somewhat reluctant to yield to this new régime and the doctors, nurses, dentists and pharmacists still more reluctant to embrace it.

It may be well, however, to consider this matter well and not hastily; this Committee is constituted of distinguished men; five years' time and hundreds of thousands of dollars were spent before the report was concluded, but as far as is now apparent, the report does not represent a new thought, for in its analysis it appears an ethereal type of universal health clinic based upon huge community insurance; it is not the Nirvana of the problem, nor is it the answer to the country's medical perplexities.

Beyond all doubt the whole world is in need of readjustment, but when it takes place, which is not yet, it is to be hoped that our traditional and time-honored profession with its humanitarian history, that has ever striven to improve and maintain health, will not be sacrificed to the fetish of a false "Efficiency" or weak enough to be exploited by single-minded health authorities, commercialized industry or insurance interests.

The arrow of investigation has missed the target.

MEDICAL SOVIETS

As this issue goes to press, the final report of the Committee on the Costs of Medical Care has just been made public, and is receiving much comment, mostly unfavorable, both in the columns of the lay press and in the professional journals. To this clamor of criticism we hasten to add our word of disapprobation. The most objectionable recommendations embodied in the majority report of this committee are briefly these: first, that all medical care be furnished by organized groups of physicians, dentists, nurses, and allied personnel, each group centering preferably about a hospital, organized and equipped to give complete home, office, and hospital care, and "preserving a personal relation between physician and patient"; second, that the costs of medical care be placed on a group payment basis, either through health insurance, taxation, or a combination of the two.

In effect, these two recommendations spell group practice on a contract basis, under lay or even political control. The evils of such a system are manifest, and are well pointed out in the first minority report, sponsored by the representatives of the American Medical Association in the committee. That contract practice leads almost invariably to lowered standards, perfunctory and often deficient service, widespread malingering, and other abuses is undeniable. Group practice leads inevitably to a loss of that personal relation between physician and patient which the majority report ostensibly holds paramount. Furthermore, the financing of medical group practice by health insurance, either voluntary or compulsory, must increase the cost of medical care because of the added expenses of operating the insurance plan; hence the working of the system would defeat its own avowed purpose. Many other objections have been raised, but the foregoing will suffice to illustrate some of the potential evils of the revolutionary system recommended by this committee.

In view of these facts, it behooves every physician to familiarize himself thoroughly with the issues at stake, that the profession as a whole may intelligently and unitedly oppose the imposition of such a system upon us.

DOMESTIC MEDICINE

In brief this may be defined as being medical knowledge that should be universally known, that should be a part of the medical information of every family, and those sound and fundamental facts of medical science that every mother could and should teach her children. It has, however, become a vestige of the time when children could reach their mother's skirts and of the time when both mothers and their skirts were near enough to the homes for the children to be able to find when needed. Some of these homely truths should have been continued into professional medicine and through argument and proof become worthy of incorporation with it. It is very interesting to note that many of the things we learned from our really truly mothers have almost ceased to be considered as integral in a modern and presumably more scientific life. It was not until we nearly lost a patient from partaking of corn and beans that this lack was realized. It is curious to find that dietetic "insults" are no longer described in our books, and that there are now no warnings as to possible fatalities from the ingestion of what used to be called indigestibles. As yet this writer has not seen them discussed in any of his numerous books on nutrition and dietetics. Consider the matter of pork,—one has seen many cases of illness from pork and veal, yet no storm signals have as yet been hung out on these articles of food, nor has there been any scientific discussion of what makes pork in some indigestible. Many physicians will state that it is not indigestible, yet anyone who sees digestive problems knows very well that it is hard to digest and that it very frequently causes illness. In many persons corn goes through the alimentary tract unchanged, and with many the classic "corn and beans" frequently occasions acute indigestion immediately after eating. The beans thereof is a frequent cause of disturbance, and the writer has come to feel that this highly seductive and amylaceous food causes epigastric distress and borborygmic eructations. It is even denied that there is no such thing as acute indigestion, yet it is frequently occasioned by dietary errors. Anyone who has ever seen the gas bubble of the stomach in the fluoroscope cannot have failed to notice its close proximity to the apex of the heart and appreciate how such pressure through the diaphragm adds another burden to the heart movements in an organ already, perhaps, weakened by valvular disease or a diseased myocardium. There are countless occasions where the exhibition of simple carminatives relieves the stomach of its burden of air and the heart becomes less tumultous

in its action. Not all of these cases are caused by spasm of the pylorus. As to ham and other pork products, more than once have they been offered to hospital patients shortly after operations and even after operations on the stomach. The writer believes that ham and chipped beef have no place on the dietary of any hospital, either for patients or for workers in the hospital. If anyone knows what there is about coffee jelly and whipped cream that makes one ill, the information would be welcome, for it cannot be found in any book we know of, yet we can recall many cases of serious illness from this attractive delicacy. In a very recent book on nutrition, the word "obesity" cannot be found in the index. Now probably a physician is supposed to know all about these things, yet they do not seem to be matters of common medical knowledge, and they certainly are not known to the present generation of hospital dietitians.

Closely related to this is the important matter of laxative drugs. There is hardly a medicine used in the treatment of gastro-intestinal disease that does not contain cathartic drugs. Frequently they are named in the accompanying formula but in letters so fine that they frequently escape notice. They are in many cases the cause of obscure abdominal pain, and soon lead to chronic constipation and its many concomitant ills. In other words, we often make our patients ill by the medicines we prescribe. Laxatives are frequently incorporated in ordinary foods and in the countless "health foods" with which the market is flooded. Information about all these matters should be a part of our common school systems, that the young may be informed of their importance early in life, thereby obviating the possibility of parental omission.

ORATORY

At a meeting not long ago, a doctor began his remarks with the statement that, being a physician, he was not a trained speaker, a man of deed, not of words. He then took ten or fifteen minutes of his hearer's time in proving that he was right. This is deplorable. If ever a man needs the ability to speak well, to be subtle and suggestive, clear and persuasive in his use of words, it is the physician acting in a crisis and confronting that most highly emotional group, the anxious patient and his anxious family. In such conditions he should realize that he is under scrutiny, that his every word is being weighed and may be used against him. No one could have more use for the power of persuasive eloquence than he.

Furthermore, medicine is ranked as a learned profession. It is surely hardly in keeping with its traditions for the physician to be unable to address his colleagues or others in fitting and dignified fashion. Fortunately of late our larger hospitals are showing some appreciation of this fact and are attempting to train their interns to present and discuss cases in staff meetings. It is a matter that every physician should consider seriously, as not only his patients and friends, but also his colleagues and he himself will distinctly benefit if he acquires an adequate facility in the use of the "King's English."

GASTRIC HEMORRHAGE*

By John F. Kenney, M.D.

206 Broadway, Pawtucket, R. I.

My reason for taking up this subject is that during a medical service there is usually some outstanding case or cases that impress you and during my last service we had several such cases of gastric bleeding.

I know of no other medical condition that will startle or amaze a physician more than to be called in to see a patient that has vomited large amounts of blood previous to his arrival and continues to do so, with the patient in a semicomatose, pulseless condition and excited relatives asking him to do something. I think a post partum hemorrhage is preferable. At least, you can do more for the patient at the start.

Bleeding may be copious in some cases and come on without any previous warning, or it may consist of small amounts over a large period of time, although the chronic bleeding of small amounts may never be accompanied by vomiting, being found in the stools grossly or by clinical, microscopic or spectroscopic tests.

Many men feel that hematemesis is due to ulcer or malignancy and give very little thought to other

*From Medical Service, Memorial Hospital. Read before the December meeting of the Memorial Hospital Staff.

causes, advise X-ray and feel that they have covered the ground. Fully as many cases of hematemesis are caused by other conditions, and I am sorry to say that many of the younger men today rely on all the laboratory and X-ray examinations, when a larger number might be unnecessary, if a careful history and physical examination were made with a definite purpose of arriving at a diagnosis and use some of the laboratory means to confirm the findings. So in this condition a thorough going over the patient's case may reveal some other cause than a local stomach lesion.

Blood in the stomach contents or in the stool may result from blood entering the stomach from a diseased esophagus, lung, or some adjacent organ, by fistula, in tabes, epilepsy, vicarious menstruation, purpura, anemia, poisons, infection, typhoid, yellow fever, cholera, pancreatitis, blood disease, diseases of the spleen as leukemia, in trauma as blows or stab wounds, foreign bodies, some volatile poisons and aneurism of small gastric vessels.

The amount of blood vomited may vary from small amounts up to several quarts, may be clear or clotted. At times a small amount may be vomited and the remainder remain in the stomach and be passed through the bowel so that when it is reported that a small amount has been vomited, further investigation should be undertaken as to patient's symptoms and general condition and stools looked over. In testing for occult blood, it should be borne in mind that positive may be due to foods, medicine, etc.

The Benzidin Test is one of the most delicate reactions. To a few c.c. of a saturated solution of benzidin in glacial acetic is added about 2 c.c. of solution to be tested and add 1 c.c. of 3% hydrogen peroxide. A positive reaction is indicated by a green or blue color. A tablet can now be had of benzidin dropped in solution and add glacial acetic.

I feel that having thoroughly excluded foods, drugs, in properly prepared patents, the test for occult blood is a valuable aid in excluding malignancy in the gastro-intestinal tract when there is other evidence to indicate growth or tumor mass.

The average mortality in gastric hemorrhage is about 2% but may be about double that where hemorrhage is a contributing factor in other existing conditions.

Treatment: It is first of importance to ascertain the cause, as I have previously stated. When the lesion has been placed in the G. I. tract, morphia is valuable. One-half grain or more p.r.n. with watching the respirations. The hemorrhage has already lowered the blood pressure and slows the heart, which in itself is an aid to stopping somewhat the hemorrhage. Morphia will also do this and what is most necessary will quiet the nervous, restless patient. Some men believe that when using large doses of morphia that it should be counteracted by atropine, but action of atropine in these cases should be watched, as hemorrhage from any organ depletes fluid from other tissues and organs in nature's attempt to maintain the circulation. The kidney output may be interfered with and the disturbing drying of the mucous membranes of the mouth, throat, etc., that are already made dry from the bleeding.

The blood pressure reading at the start is important and a guide to later prognosis of the patient's condition by repeated readings. Complete blood counts and clotting power should be made at once. Blood typing should also be done at once and a donor or donors made ready if possible.

The patient is naturally in bed, and if the bed is slightly elevated at the foot, it will make it easier for vomiting and patient is a little more comfortable from the usual cerebral circulatory depletion. Keep the patient warm. With the usual patient in hemorrhage, this will be enough at the start and subsequent treatment will depend on the course and symptoms of the patient. Many of the patients are harmed by overdoing it. We realize that the patient has had a severe hemorrhage and is in a weakened condition, and with panicky relatives, clamoring for you to do something, we are apt to continue to try to do something.

If the vomiting is persistent, occasional lavage with hot saline solution about 100 degrees is a valuable aid in stopping hemorrhage. Retching is a disturbing condition and saline gives the stomach something to return, the heat is soothing to the mucosa and frequently will aid clotting around a small bleeding area.

Large clots are also washed out and vomiting is thus stopped. Clots act as a foreign substance and will sometimes remain in the stomach, and while they do, vomiting will persist. To my way of thinking, even in a perforation, no harm can be done if the patient is in a partial Trendelburg position. I think the chance of infection with food and stomach contents in the peritoneal cavity is somewhat lessened by the washing out process. This is men-

tioned in answer to the usual question of the damage done when there is danger of perforation.

The usual suspected or actual bleeding case has the ice bag applied. Many men feel that this is of no value or even harmful. Continued cold may serve to paralyze the vascular and nervous system, preventing the constrictor action that may stop the bleeding. If you watch the surgeon doing a hysterectomy, he will usually ask for hot amputation rolls or dry sponges when he is up against a small capillary hemorrhage.

In cases of appendiceal abscess or some infection or even in cases of complete rupture of ulcer with peritonitis and stasis is advisable, then the use of ice or cold application is desirable.

The application of general heat and the usual shock treatment in this regard can be carried out. Keep all nourishment away, as anything in the stomach stimulates peristalsis and defeats the purpose of allowing the area to clot. Do not start anything by mouth for from one to three days. Nutrient enemas, saline or tap water drip may be used to provide nourishment and keep up the body fluids. Glucose may be given intravenously; 5% calcium chloride 20 c.c. and 500 c.c. sodium bicarbonate 1% can be used intravenously and sometimes aid clotting. Normal saline subcutaneously can also be used. When the signs of bleeding have stopped, patient may be given mouth nourishment. It is not necessary to wait until the blood tests in stool are negative, but an improvement in blood pressure, pulse qualities, blood count increase and no abdominal peritoneal signs is an indication of improvement.

Warm, soft foods, in very small amounts frequently until patient is well. Later avoid any roughage and a minimum of fat, which delays the emptying time of stomach.

I might mention the fact that blood transfusion may be resorted to in cases of persistent seepage from an ulcer and surgery may sometimes have to be resorted to in order to stop hemorrhage, and in repeated cases of hemorrhage should advise patient to consult a surgeon.

I wish to report briefly several cases of hemorrhage other than the classical ulcer cases that occurred during my last service. The first case, G. C., male, age 50, was sent to the hospital through the Out Patient Department with the diagnosis of malnutrition resulting from present living conditions. After a check-up, including X-ray, a diagnosis of inoperable malignancy was made. At no time did the patient have any blood by mouth or in the stool. Had a sudden violent hemorrhage, dying in a few minutes.

The second case, M. A. B., sent in with a diagnosis of hemorrhage from the stomach. X-rays were negative. W.B.C. 6,000. R.B.C. 1,680,000. Hgb. 20%. This patient improved on a high vitamin diet and parental liver extract injections. Discharged four weeks from entrance with a hgb. of 30%, and R.B.C. of 3,500,000.

One interesting case to report, somewhat more in detail, is that of J. C., age 23, admitted February 16, 1931. *F. H.*, negative. *P. H.*, negative. *P. I.*, previous history of pain in the epigastrium, which began two months ago and was persistent. He would wake up in the morning and also go to bed with it. Food would relieve it but it would return three hours later. He went to L. M. D. with some relief. Stomach continued to be sour, however. He also took some radio-advertised medicine without relief. Has had one or two bowel movements each day and never noticed any change in the color of the stools until a few hours before admission. Admission diagnosis was hemorrhage from the stomach and bowels. P. E. was essentially negative except for marked blanched appearance of the body, including the conjunctiva, lips and gums. No pain or tenderness or rigidity of the abdomen. Pulse 110, very weak. Blood pressure 95/50. This severe hemorrhage started several hours previous to entrance. Patient was immediately typed as also her donor in anticipation of transfusion. Cracked ice was given by mouth. Morphia used. Glucose by rectum. Usual dietetic treatment carried out on cessation of bleeding. Patient given large doses of Blauds and Liver Extract. The blood count on admission was hemoglobin 13%, R.B.C. 1,360,000, W.B.C. 16,000, February 16, 1932. On February 19th, before iron and liver was started, the hemoglobin was 15%, and R.B.C. 1,400,000, about the same as on entrance. On February 24th, the hemoglobin was 25%, R.B.C. 2,3800,000. On March 1, 1932, hemoglobin 28%, R.B.C. 2,800,000. On March 5, 1932, hemoglobin 30%, R.B.C. 2,900,000. On March 15, 1932, hemoglobin 40%, R.B.C. 3,500,000. The first G. I., series taken twelve days after entrance, was negative for any lesion in the stomach or intestinal tract, as also a repeated series on February 18, 1932, before he was discharged. The patient complained of no symptoms at any

time during the hospital stay, and he was discharged one month after admission. The patient was re-admitted in three months time with severe pain in the epigastrium and to a lesser degree in the R.L.Q. Vomited only a small amount once previous to entrance. Patient operated and surgeon removed a gangrenous appendix with localized peritonitis and draining. In the interval between the first and second admission to the hospital, the patient's symptoms were as previous to the first entry. Had had treatment by several physicians who still made a diagnosis of ulcer of the stomach. I am now presenting the patient in person six months after operation:

Q. How do you feel now and how have you been during the past six months?

A. Never felt better in my life.

Q. What diet or treatment are you following?

A. No treatment and eating anything.

Conclusions: This last case to my mind was probably a case of bacteriological infection of the mucosa causing hemorrhage, emphasizing the point that I mentioned early in the paper that the primary cause of the bleeding may be elsewhere in the body; that we should not be satisfied by negative findings of X-rays, as we also know that many cases of small fissure-like ulcers do not show under the X-ray; that we should not attempt to overtreat these cases of hemorrhage and that care should be taken not to X-ray too early after the initial hemorrhage.

SOCIETIES

Rhode Island Medical Society

Council Meeting

The regular meeting of the Council was held on Nov. 17, 1932, at 4:30 P. M., at the Medical Library, with the President, Dr. N. D. Harvey, presiding.

The minutes of the previous meeting were read by the Secretary and approved.

The Treasurer's budget was presented by Dr. J. E. Mowry and accepted.

He pointed out the relatively large amount expended in connection with the New England Medical Council. It was pointed out that the expense of the Council, which included traveling expenses of the delegates from all the New England states, luncheon, printing of the transactions of the Council, were divided by six so that each New England state paid an equal amount toward the expenses. Opinions were expressed that it placed a much larger burden upon the delegates from this state inasmuch as their proximity to Boston, the usual meeting place, is much less than those from more distant states, and it was suggested that the delegates from the Rhode Island Medical Society confer with the secretary of the New England Medical Council with reference to the expense placed upon this Society to see if a different allocation of expenses would lessen the financial burden of this Society, and requested to report later to the Council.

It was moved and seconded that the funds turned over to the Rhode Island Medical Society by the Clinical Conference Committee by vote of May 24, 1927, be applied to the expense incident to cataloguing the Library. So voted.

Adjourned.

Respectfully submitted,

J. W. Leech, *Secretary*.

House of Delegates

The regular quarterly meeting of the House of Delegates was called to order by the President, Dr. N. D. Harvey, at 5 P. M., Nov. 17, 1932, at the Medical Library.

Report of the Council meeting immediately preceding this session was presented by the Secretary and the House of Delegates voted to accept the action of the Council in approving the Treasurer's budget.

On motion by Dr. Skelton, seconded by Dr. Jones, it was voted that the annual dues for the ensuing year be fixed at $10.00.

Under new business Dr. Waterman, chairman of the Committee on Education, State and National, called attention to the unsatisfactory condition under which the broadcasting of papers under the auspices of that committee over Station WJAR was subjected, due to time placed at the disposal of the committee. This is usually about 6 o'clock, with relatively few listeners, and the essayists not getting full time being encroached upon by other programs. Dr. Waterman raised the

question whether or not it would be possible for the Society to appropriate funds for the rental of a definite and more suitable hour for this broadcasting of the program of the Committee on Education. He was requested to get definite statement as to the expense incident to such a program and report to the House of Delegates later.

Adjourned.

Respectfully submitted,

J. W. Leech, *Secretary.*

The regular quarterly meeting of the Rhode Island Medical Society was held at the Medical Library Building, Dec. 1, 1932, at 4 P. M., with the President, Dr. N. Darrell Harvey, presiding.

The minutes of the previous meeting were read by the Secretary and approved.

The President appointed Dr. Elisha D. Clarke, Woonsocket, R. I., member at large of the Board of Trustees of the Rhode Island Medical Library Building.

The President called the attention of the Fellows to the deaths of the following members since the annual meeting in June:

Dr. W. W. Keen, Honorary member, died June 7, 1932.

Dr. Frederick T. Rogers, Past President of this Society, died Aug. 23, 1932, and requested a moment of silence in respect to the deceased members.

The Secretary called attention to the recent newspaper report of the Committee on Costs of Medical Care, which has been considering this subject for the last five years. In anticipation that this Society will receive both the majority and minority report of this Committee, and be asked to express an opinion thereon, it was moved and seconded that the President be empowered to appoint a committee of five with the President and Secretary ex-officio members to consider the full report of this Committee when it shall be available, and to report its findings to the Society. The President appointed the following committee:

Dr. Murray S. Dansforth, Chairman, Dr. Walter Rocheleau, Dr. Chas. E. Christie, Dr. Halsey DeWolf, Dr. Herman C. Pitts, President and Secretary ex-officio.

The following program was then presented:

1. "The Introduction of Surgical Anesthesia," Dr. Albert Miller.

2. "Congenital Dislocation of the Hip," Dr. John Ridlon, Newport, R. I. Discussion by Drs. Hammond and McCusker.

3. "Radium Therapy in Uterine Hemorrhages of Benign Origin," Technique and End Results. (Lantern slide demonstration.) Dr. Louis E. Phaneuf, Professor Gynecology at Tufts Medical School. Discussion by Drs. Pitts and Waterman.

Mr. J. Earle Bacon, Secretary of the Rhode Island Branch of the National Economy League, addressed the Society with reference to the aims of the League, especially the reduction of governmental expenditures incident to disability claims of veterans. He urged that the members join the League for the purpose of helping to reduce governmental expenses.

A collation was served after adjournment.

Respectfully submitted,

J. W. Leech, M.D.,
Secretary.

Providence Medical Association
(Providence District Society)

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Lucius C. Kingman, Monday evening, November 7, 1932, at 8:50 o'clock. The records of the last meeting were read and approved. The Standing Committee having approved their applications, the following were elected to membership: Frederick R. Larson, Edmond C. Laurelli, John F. Londergan, Frank C. MacCardell, George M. Lott, Palmino Di Pipo, Nathaniel D. Robinson, Edwin Vieira.

The papers of the evening were on Oxygen Therapy. The first by Dr. Albert H. Miller dealt with Technic. He described the different methods used. 1. Nasal tubes. 2. Face inhalers with valves to prevent rebreathing. 3. An open cone such as is used for ether anesthesia (this depends on the greater weight of oxygen over air causing it to accumulate at the bottom of the cone). 4. A tent suspended over the patient's head and tucked closely about him. (50% oxygen is the usual atmosphere used. Ice must be introduced into the circuit to keep the temperature down. The carbon dioxide usually regulates by leakage.) 5. Portable or stationary rooms in which the patient lives and to which oxygen is supplied. (These are expensive and have a big fire hazard.) Slides showed the different apparatus.

The second paper by Dr. Alex. M. Burgess and Alex. M. Burgess, Jr., was, "The Clinical Value,"

with a demonstration of a method based on a new principle. The normal oxygen content of the blood is 70% and its chief function is the converting of lactic acid into dextrose. In anoxemia the glycogen supply of the heart muscle can be wiped out in 1½ minutes. Pneumonia, cardiac insufficiency and carbon monoxide poisoning are the more important conditions where extra supplies of oxygen are necessary to combat anoxemia. Cyanosis is the best guide to anoxemia and even small degrees are serious.

The Burgess method was suggested by the open cone. The patient lies with his head in a box open at the top and a small flow of oxygen keeps the percentage at the level of the patient's face near the 50% content desired. The humidity and heat, however, were found to be marked. An ice box was then hung inside the apparatus which obviated these difficulties but caused air currents which cut down the oxygen percentage. Then a guard was placed over the ice box preventing currents and conditions now seem fairly satisfactory. Slides illustrated graphically the experiments. The papers were discussed by Drs. Fulton, Winsberg, Lyman, Feinberg, Miller and Burgess. The apparatus was demonstrated.

The meeting adjourned at 10:20 P. M.

Attendance 123. Collation was served.

Respectfully submitted,

PETER PINEO CHASE,
Secretary.

The regular monthly meeting of the Providence Medical Association was held at the Medical Library, 106 Francis Street, Monday evening, Dec. 5, 1932, at 8:45 o'clock.

Program follows:

1. "The Hemolytic Streptococcus," Dr. Dennett L. Richardson and Dr. Harold E. Smiley.

2. "Avertin Anesthesia in General Surgery," Dr. Anthony V. Migliaccio. Paper discussed by Dr. W. MacGilvra, chief anesthetist of the Worcester Memorial Hospital; instructor in anesthesia at Harvard Dental School, and Dr. Albert H. Miller.

The Standing Committee approved the applications for membership of the following, and their elections followed: Charles Bradley, David R. Brodsky, Morris L. Grover, Clarence J. Riley, Frederick R. Riley, Walter C. Weigner.

Nomination of Officers

In accordance with Article I, Section 6, of the by-laws the Standing Committee made the following nominations for offices and committees for the year 1933:

For President, James W. Leech, M.D.

For Vice President, Charles F. Gormly, M.D.

For Secretary, Peter Pineo Chase, M.D.

For Treasurer, Charles F. Deacon, M.D.

For member of the Standing Committee for five years, Lucius C. Kingman, M.D.

For trustee of the Rhode Island Medical Library for one year, Henry J. Hoye, M.D.

For reading room committee, George S. Mathews, M.D., Elihu Wing, M.D., Guy W. Wells, M.D.

For delegates to the House of Delegates of the Rhode Island Medical Society, H. Libby, M.D., A. W. Mahoney, M.D., J. A. Gilbert, M.D., C. W. Skelton, M.D., T. Grzebien, M.D., F. W. Dimmitt, M.D., R. DiLeone, M.D., L. I. Kramer, M.D., W. A. Horan, M.D., P. C. Cook, M.D., J. J. Hoey, M.D., R. R. Baldridge, M.D., C. C. Austin, M.D., E. A. Sharpe, M.D., J. G. Walsh, M.D., C. H. Woodmansee, M.D., R. H. Whitmarsh, M.D., V. J. Oddo, M.D., W. Hindle, M.D., P. P. Chase, M.D.

For Councillor for two years, Clinton S. Westcott, M.D., and these officers were duly elected.

Collation followed.

Respectfully submitted,

PETER PINEO CHASE,
Secretary.

RHODE ISLAND OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY

The regular quarterly meeting was held at Rhode Island Medical Library on Thursday, Dec. 8, 1932, at 8 P. M. Case report, Dr. Hacking; case report, Dr. Bolotow. Subject, "Local Manifestations of Some General Systemic Disease," Dr. Herman A. Lawson. Discussion by Drs. Messinger and Adams.

N. A. BOLOTOW, M.D.;
Secretary.

HOSPITALS

St. Joseph's Hospital

The November meeting of St. Joseph's Hospital Staff Association was held on November 10, 1932, Dr. William A. Horan presiding. Routine business having been disposed of, the following program was presented:

Dr. Charles A. McDonald, "Intracranial Hemorrhage in Adults," discussed by Drs. McEvoy, McCaffrey, McGuirk, Mahoney, Hamilton, Matthews, Boyd and Messinger.

Dr. James F. Boyd, "Some X-ray Findings in Routine Examinations of the Chest."

Dr. Mario A. Castallo, "Early Detection of Chorio-Epithelioma by Means of the Anterior Pituitary Hormone—Report of a Case."

Dr. George F. Coleman reported a case from the obstetrical service.

The annual meeting of the St. Joseph's Hospital staff was held on December 8, 1932, Dr. William A. Horan presiding. Routine business having been disposed of, the annual reports of the Secretary and Treasurer were read and accepted. The Nominating Committee reporting, offered the following slate of officers for the year 1933: For President, Dr. Frank E. McEvoy; and for Secretary-Treasurer, Dr. Earl F. Kelly. They were unanimously elected.

The following program was presented: Dr. Frank E. McEvoy read a short paper on "Facial Pain," which was discussed at length by Dr. John E. Donley.

Collation was served at both meetings by caterer, through courtesy of the Mother Superior, attendance at former 80 and at latter 90.

Rt. Reverend Monsignor Peter E. Blessing, V.G., acting for the Board of Trustees, presented the new and revised rules and regulations governing the staff, and a copy of these new regulations was presented to each member in attendance.

Joseph L. Belliotti, M.D.,
Secretary.

BOOK REVIEWS

Functional Disorders of the Large Intestine and Their Treatment," by Jacob Buckstein, M.D. Harper Brothers, Publishers.

A very useful book to clinicians. The common diseases of the large intestine as well as some less frequently seen are discussed. Particularly valuable is the discussion of symptoms in disorders where X-rays do not help in the diagnosis. A proportionate amount of space is devoted to treatment. The book also had a good many illustrations and X-ray pictures and is well condensed. The paper is good and the type is moderately large and easy to read. "Functional Disorders of the Large Intestine and Their Treatment" is strongly recommended to practitioners.

The Practical Medical Series. Neurology, edited by Peter Bassoe, M.D., Clinical Professor of Neurology, Rush Medical College of the University of Chicago. Psychiatry, edited by Franklin G. Ebaugh, A.B., M.D., Professor of Psychiatry, University of Colorado Medical School; Director, Colorado Psychiatry Hospital; Associate Director Division of Psychiatric Education, the National Committee for Mental Hygiene. Series 1931. The Year Book Publishers, Inc., 304 South Dearborn Street, Chicago.

In this volume, which is a summary of the year's progress in Neurology and Psychiatry, the publishers have for the first time divided the book into two parts with separate editors. While it is generally agreed that somatic and psychic disturbances of a disordered nervous system are so closely correlated that they should not be studied apart, yet because of the increasing bulk of the yearly literature it is more practical that each subject should be considered separately.

That part of the book in which critical digests of the year's progress in neurology is recorded is edited by Peter Bassoe, M.D., a neurologist of high standing. He has abstracted and commented upon articles in American and foreign journals in a most informative manner.

The second part of the book deals with Psychiatry and is edited by Franklin G. Ebaugh, A.B., M.D., one of the foremost psychiatrists in this country. His criticisms of the articles reviewed are most valuable.

Considered as a whole, this year's volume is a distinct improvement over previous editions, in that the purpose of the book: Progress in Neurology and Psychiatry, is better attained by two editors, each a specialist in his own field.

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ORIGINAL ARTICLES

AVERTIN ANESTHESIA IN GENERAL SURGERY*

By Anthony V. Migliaccio, M.D.
282 Broadway, Providence, R. I.

Tribromethyl alcohol, tribromethanol, or Avertin, as it is more commonly known, was first introduced to the medical profession by Duisberg and Willstaetter in 1923. Its acceptance, as an adjunct to our anesthetic armamentarium, has increased tremendously within the past few years and its popularity with the patient, anesthetist and surgeon is quite general. A popularity so universal could not be expected unless this new member possessed some desirable qualities not found in the other anesthetics.

Before delving into these qualities, may I digress for a moment to give some of the fundamentals about the drug, the method of administration, the indications and contraindications for its use.

The crystals of tribomethanol are dissolved in Amylene hydrate and the resulting liquid is marketed as Avertin.

The Avertin is administered to the patient as a 2½% solution. That is, each cubic centimeter of the Avertin is dissolved in forty (40) c.c. of water. It is of utmost importance to have the water at a temperature of not less than 95° F. and not more than 104° F. This precaution is necessary so as to avoid the breaking down of the Avertin, which occurs when the temperature is above 104° F., with the release of dibromacetaldehyde, a corrosive and irritant drug, which in the past accounted for the sluffing of rectum. With temperature below 95° F., complete solution of the Avertin in the water does not occur.

The required dose of the drug is dissolved in the correct amount of water, at the desired temperature, in a flask, by gentle shaking. The complete solution is attained when the heavy globules of Avertin fail to settle out of the water. At this stage three drops of Congo-Red are placed either in the flask or in a test tube containing about five (5) c.c. of Avertin mixture. An orange color indicates the absence of decomposition products; a blue or violet shows the presence of these and means that the solution should not be used.

It is best to administer the anesthetic in the patient's room so as to avoid the emotional strain which is inevitably associated with the "ride" to the operating room. A cleansing enema should be given on the night previous to operation, if the operation is to be performed early, or, if it is to be performed later in the day, the enema should be given in the early morning. Morphia and atropine are used extensively pre-operatively.

With these preliminaries out of the way, the Avertin enema is given. It is best to use a 12 French soft rubber catheter on the end of a small funnel. The administration should take at least five (5) minutes.

Light, talking and all noises are best avoided, so as to obtain a smoother induction. Within five (5) minutes the patient's words are "thick and drawled out." Soon the eyes are closed and the patient falls into a light sleep from which he can easily be aroused, but, with time, this becomes increasingly difficult and within ten (10) minutes the patient is in a deep sleep.

The time of appearance of this stage of narcosis varies directly with the speed with which the Avertin enema is given. When the enema is given in less than three (3) minutes the patient falls into a deep sleep quite rapidly. This, however, should be avoided as it is apt to cause cyanosis and a greater drop in blood pressure than would ordinarily be encountered.

Patients practically never show any signs of excitement during the induction. To say that narcosis as induced with Avertin is the closest approach to natural sleep, so far available, may not sound impressive, but I feel certain that anyone who watches a patient "fall asleep" with this new anesthetic cannot fail but to be impressed with the truth of that assertion. TO SEE AN INDUCTION IS TO BECOME A CONVERT.

The patient's mental reactions are invariably pleasant and have been compared, by several, to

*Read before the Providence Medical Association, Dec. 5th, 1932.

the stage of euphoria, usually present in the earlier hours of alcoholic intoxication; others compare it to the deep sleep that one enjoys after an exhaustive day's work, while still others claim that a state of relaxation and freedom from worry so smoothly and so quickly overcomes them, that there is nothing else to do but to fall back and go to sleep. One high strung, nervous patient told me that it was the first time in years that she felt as though she were at peace with the whole wide world.

As the depth of narcosis increases, the patient's respirations become automatic. About ten (10) minutes after the enema, the respiratory excursions are deeper than normal, but by the time narcosis is obtained, the excursions are a little shallower than normal. With larger doses, however, the shallowness of the respiration is greater, but this can readily be overcome by the administration of carbon-dioxide. The pupil becomes contracted but reacts sluggishly to light.

A moderate blood pressure drop of from 10 to 30 points may occur but this is usually so insignificant that one rarely takes blood pressure readings through the operation.

The patient can now be taken to the operating room, care being taken to hold the jaw well forward so as to prevent occlusion of the larynx by the relaxed tongue and the concomitant cyanosis.

The dose of Avertin administered varies from 50 to 100 milligrams per kilogram of body weight and is dependent upon the age, sex, condition of the patient and the type of operation to be performed.

The maximum dose should never exceed ten (10) cubic centimeters in the male and eight (8) cubic centimeters in the female. However, after several trying experiences, I have limited by maximum dose to 7 and 6 cubic centimeters respectively and now find that satisfactory anesthesia can be obtained without resorting to the larger doses.

Avertin is used merely as a *basal anesthetic*, but large series show that in approximately thirty per cent (30%) of cases the operation can be completed without the aid of supplementary anesthesia. If, however, the anesthesia is deeper than desired, carbon-dioxide, strychnine, caffeine, ephedrine or adrenalin can be used to speed up elimination and lighten anesthesia.

In the extra-abdominal operations, where supplementary anesthesia is necessary, local infiltration of novocaine or administration of gas oxygen suffices. With the gas mixture we not only use a much smaller volume than ordinarily but also a greater percentage of oxygen.

In the abdominal operations somewhat more nitrous oxide is used and greater relaxation can be obtained if the anesthetist administers about one ounce of ether through the gas machine just previous to the opening, and, again, before the closing of the peritoneum. The patients rarely realize that a supplementary anesthetic was administered.

Avertin basal anesthesia can be used in practically every type of operation but it is especially advantageous in nervous individuals, in operations about the head and neck and in operations requiring considerable time. It offers special inducements to the gynecologists in combined vaginal and abdominal operations, for in these cases the vaginal work can be done with little or no supplementary anesthesia and it is not until the abdomen is prepared that gas oxygen need be given.

In operations about the mouth there is no face mask to obstruct and interfere with the surgeon. In operations for hyperthyroidism, Avertin is ideal, for in these cases the patient is asleep before he is even aware of the fact that he is being anesthetized, thus avoiding a great deal of unnecessary excitement and anxiety for the patient. Lahey has recently stated that Avertin can be used in post-operative thyroid crises.

The contra-indications can be summarized as follows:

1. Advance disease of the liver or kidneys.

   This contra-indication is due to the fact that Avertin is probably broken down in the liver and is excreted by the kidney after it has combined with glycuronic acid. However, Shipley and Karns at the Johns Hopkins University Hospital examined the urine of eighty-seven (87) patients for twenty-four (24) hours after they had had Avertin and they found albumen and red blood cells in only four (4) cases. They looked especially for albumen, casts and red blood cells. They also used this anesthetic in ten (10) patients with prostatic disease, who had a diminished phenolsulphonthalein excretion and some of whom had a high blood N.P.N. Others had hydronephrosis with infection before operation. Operations were performed in one and in two stages. Their post-operative studies showed no evi-

dence of new kidney damage and in no case was the blood N.P.N. increased.

Bourne and Raginsky, who studied the effect of Avertin upon the normal and impaired liver in dogs, concluded from their experiments that "Avertin can probably be used quite safely in individuals with moderate liver damage, though it is perhaps advisable to use a smaller dosage."

2. Obesity.
3. Ulcerative diseases of the rectum.
4. Extreme cachexia.
5. Dehydration.
6. Debilitated elderly patients.

The smoothness of the induction is paralleled by the ease and comparative freedom from discomfort experienced by the patient post-operatively, for the patient awakens in his own room with complete amnesia of the incidents following the enema. A pleasant sleep of from two to twenty-four hours duration invariably follows the operation. During this period the tongue is completely relaxed and readily falls back, thus impairing respirations. To combat this, it is necessary to turn the patient's head to one side, to hold the jaw forward, to insert a nasal catheter or an airway.

Only about 25% of the patients are nauseated or vomit post-operatively. This, however, is extremely mild as compared to that seen after other general anesthetics. Gas pains are likewise mild and infrequent.

The shock so frequently seen after long ether operations is rarely encountered with Avertin. It is also remarkable to notice the pulse chart in these

TABLE No. 1

Type of Operations	No. of Cases	Avertin only	Avertin and N_2O	Avertin and N_2O and Ether	Average Duration of Operation	Average Pulse Start	Average Pulse End
A. HEAD AND NECK	20	14	3	3	37 min.	94	106
1. Ca. of Ear (Excision)		0	1	0			
2. Ca. of Tongue (Surgery or Radium)		5	0	0			
3. Bilateral Antra and Ethmoid and Septum		3	0	0			
4. Tonsils and Adenoids		1	0	0			
5. Repair of Cleft Palate		0	0	3			
6. Ca. of Mouth		2	0	0			
7. Thyroidectomy		1	2	0			
8. Glands of Neck		2	0	0			
B. THORAX	2	1	1	0	40 min.	92	101
1. Mastectomy (Local)		1	0	0			
2. Mastectomy (Radical)		0	1	0			
C. ABDOMINAL	36	0	12	24	60 min.	94	102
1. Exploratory Laparotomy		0	1	1			
2. Cholecystectomy		0	1	5			
3. Cholecystectomy and Appendectomy		0	1	8			
4. Appendectomy		0	2	7			
5. Colostomy		0	2	0			
6. Suprapubic Prostatectomy		0	1	0			
7. Inguinal Herniotomy (1 or 2)		0	3	1			
8. Ventral Hernia—Post-operative		0	0	2			
9. Pilonidal Sinus		0	1	0			
D. GYNECOLOGICAL	15	0	3	12	105 min.	90	102
1. Dilatation and Curettage		0	1	0			
2. Perineorrphaphy		0	2	0			
3. Laparotomy--Inoperable Ca.		0	0	2			
4. Salpingo-oophorectomy and App.		0	0	2			
5. Suspension of Uterus and Salpingo-oophorectomy and App.		0	0	2			
6. Suspension of Uterus and Salpingo-oophorectomy and App. and Amputation of Cervix		0	0	2			
7. Supravaginal Hysterectomy and Salpingo-oophorectomy		0	0	3			
8. Ccsaerean		0	0	1			
E. EXTREMITIES	2	0	0	2	40 min.	100	120
1. Mid-thigh Amputation		0	0	1			
2. Traumatic Amputation of Arm and Fractured Jaw and Lacerations of Face		0	0	1			
Total	75	15	19	41			

long operations. With Avertin the fast, thready pulse is a rarity and the patient usually leaves the operating room in a surprisingly good condition.

Post-operative complications attributable to Avertin are almost unknown. Frequently one hears mention of rectal irritation; this, however, is not seen today, but was not infrequently encountered when Avertin was first used. This improvement is due to the fact that we are no longer using the massive doses which were advocated at first and also to the fact that we guard against the irritant decomposition product of tribromethanol by keeping the temperature of the water, with which it is diluted, below the point at which this irritant, dibromacetaldehyde, is released and also by testing for its presence with Congo-Red. At the Johns Hopkins Hospital proctoscopic examinations were performed on thirty-six (36) patients, twenty-four (24) hours after the administration of Avertin, and in not a single case was the operator able to find any evidence of rectal irritation or ulceration.

It is with hesitancy and timidity that this small series of seventy-five (75) cases, in which I have had the good fortune to administer this new anesthetic, is submitted to you for consideration and evaluation. The report is presented only because it seems to represent a fair picture of the experiences gained by others from much larger series of cases.

The operations were performed at the Rhode Island, Homeopathic, Broadway and Charles V. Chapin Hospitals by nineteen different surgeons.

Table 1 presents a summary of the cases.

In this group 37% of the patients were males and 63% were females. Forty-one per cent (41%) were private and 59% were ward patients.

The maximum dose used was 100 mg/kg.

The minimum dose used was 50 mg/kg.

The average dose used was 85 mg/kg.

In 20% of the cases no supplementary anesthetic was used.

In 25% of the cases gas-oxygen was used as a supplementary anesthetic.

In 55% of the cases gas-oxygen and ether were used as a supplementary anesthetic. The amount of ether used varied from half an ounce to eight ounces. The average, however, was only 2½ ounces.

Anesthesia as obtained under these conditions was considered unsatisfactory in one case, partly unsatisfactory in two cases and satisfactory in the remaining seventy-two (72) cases.

In five (5) patients, Avertin was chosen over ether because of the presence of pulmonary complications. Two of these patients had acute bronchitis, two were severe asthmatics and one had a healed pulmonary tuberculosis. In these five patients the operations were completed without the use of ether, thus avoiding further pulmonary irritation.

The ages of the patients in this group varied from one and three-quarters years (1¾) to eighty-one years (81), with the majority falling into what is commonly referred to as the middle age, as shown by the accompanying table.

TABLE No. 2

AGE INCIDENCE IN GROUPS

Number of Cases—75

Decade	% of Cases
1- 9	3%
10-19	5%
20-29	10%
30-39	26%
40-49	25%
50-59	13%
60-69	6%
70-79	10%
80-89	2%

The average duration of operation as shown in Table No. 1 was 60.2 minutes. The shortest operation required fifteen (15) minutes, while the longest required two (2) hours and fifty-two (52) minutes for completion.

The post-operative complications attributable to the anesthetic can best be summarized as follows:

1. Death: None.
2. Rectal Irritation: None.
3. Pulmonary: None.
4. Nausea and Vomiting: This occurred in only 27% of the cases and except for the two cases noted below, was extremely mild.

   The first case of profuse vomiting was encountered in a patient who had had insertion of radium for an extensive Ca. of body of fundus of uterus, which was found at laparotomy. In this case the vomiting started twenty-four (24) hours after the completion of the operation and was, in all probabilities, due to the radium.

   The second case occurred in a patient who had had a difficult cholecystectomy performed. This patient had been submitted to two previous operations and at the time of the cholecystectomy, extensive, dense adhesions were encountered.

5. Cyanosis:

   Marked cyanosis was present in two cases. In the first one, relief was obtained by the insertion of a nasal catheter, while in the second case establishment of drainage, in a markedly edematous neck, that had been operated upon, brought relief.

6. Stoppage of breathing:

   This occurred twice in this series, once during operation and once about twenty (20) minutes after the completion of the operation. In both of these cases ordinary methods of resuscitation were employed successfully. Neither one of these patients was deeper than in a second stage anesthesia at the time that the "breath-holding" episode occurred.

The post-operative complications other than those due to the anesthetic are as follows:

1. There were two deaths. The first occurred five days post-operatively in a patient who had had a second stage prostatectomy. Death in this case was due to uncontrollable hemorrhage and old age. The second death occurred several hours post-operatively, in a patient who had had a traumatic amputation of the arm at the shoulder, extensive laceration of the face and neck and multiple fractures of the mandible. Death here was due to hemorrhage and surgical shock.

2. One patient developed a pyelitis due to a kinked ureter following an operation in which a supra-vaginal hysterectomy and Rt salpingo-oophorectomy had been performed.

In conclusion it seems fair to state that Avertin when used to produce basal anesthesia is not only safe and efficient, but also succeeds in taking the unpleasant experiences and memories away from the operation.

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THE UNDERSTANDING AND TREATMENT OF THE NERVOUS CHILD*

By Dr. Harold F. Corson

163 Bowen St., Providence, R. I.

The Child Guidance Clinic studies the nervous child particularly from the angle of personality, behavior and educational developments. The clinic set-up consists of a social worker who gets the history with special reference to behavior and personality trends; the psychologist, utilizing various standardized tests, measures the abilities and disabilities of the individual; and the physician who considers the health problem and mental aspects together with the information already obtained.

It is scarcely necessary to state that in medicine we are no longer satisfied with the treatment of symptoms without some attempt to ascertain etiological factors. In our approach we assume that personality and behavior manifestations are to a large extent symptomatic of the child's attempt to meet his particular situation. For example, if we consider such a simple thing as a temper outburst it would be possible to give numerous causes. To prescribe punishment without investigation is not unlike giving morphine for a stomachache without any attempt at inquiry.

The first step, then, must be a diagnostic study not only of the individual but also a consideration of the persons and situations with whom the child comes in contact. In principle certain steps are

*Read before the Rhode Island Medical Society, June 2, 1932.

necessary. In practice it may be possible to consider causative or etiological factors in a very brief period. They may be grouped under the following captions:

(a) Hereditary and constitutional endowment.
(b) Physical development and health problems.
(c) Special abilities and disabilities.
(d) Social development (i) within the family; (ii) in the community; (iii) economic status of home; (iv) training or lack of training.

In the large majority a satisfactory balance between conflicting forces is achieved and we have the average or happy child. In a smaller group due either to constitutional variations or to some more difficult situation the unhappy or nervous child develops. It is evident that different individuals may either react to similar situations in a diverse manner or that like reactions may arise from diverse situations. In this paper it is proposed to emphasize the more common types of reactions of the nervous child and to consider only in a cursory fashion the variety of etiological factors. In dealing with the child it is to be remembered that very frequently relatively simple measures may achieve results that would be much less probable in the adult where personality and behavior habits are more firmly entrenched. It is also to be remembered that certain activities are more or less age determined and that with proper treatment can be expected to drop out with the passage of time. Frequently the physician can be of real assistance to the parent in interpreting and evaluating the cause of concern. There are, however, a number of reactions that must be considered as important and worthy of attention. These can be listed as follows:

(a) *Persistence of Infantile Behavior.*

Ordinarily the infant can be expected to grow from complete dependence on the parents to a more or less independent adult. The parent may not recognize the significance of the behavior and very frequently is blind to his or her own need in having a very dependent creature to care for. A six-year-old girl was brought to the clinic because of crying spells, stubbornness, and the necessity of special attention in dressing and feeding. In the clinic the girl crawled up in her mother's lap, cried and acted very much as a younger child might. The mother herself was very insecure and felt that the husband was very critical of her. The financial situation together with an unsatisfactory neighborhood increased this insecurity, isolated the child from other children and tended to retard the child's progress toward a more independent existence. In short, the mother found her greatest need supplied by a dependent creature while the child maintained her position in the home by insisting on certain types of attention. Treatment here consisted largely in modifying the mother's attitude and secondarily in working directly with the child.

(b) *Return to Infantile Behavior after a More Mature Stage Has Been Reached—Regression.*

A nine-year-old girl was brought to the clinic because of baby talk, strange gait, poor adjustment in school, petulance, stealing, etc. In studying the child it was found that she had normal intelligence and no matter how careful the physical or neurological examination no organic basis could be found for it. As a result of the study it was felt that this girl was attempting to compete with a younger sister and an asthmatic brother, simulating the behavior of a younger child. One could not say that this was entirely deliberate. Certainly in treatment a great deal was done not so much through the child but through the parents. Treatment was based on the principle that much of the patient's behavior was an attempt to compete with the favored siblings and with the removal of the necessity for this competition there resulted a rapid clearing of the undesirable behavior.

It might well be added that comparisons while often a source of stimulation are as frequently the basis of feelings of inadequacy and undesirable traits.

(c) *Paranoid Reaction.*

Another type of reaction that is seen not so frequently in a child is what might be described as paranoid. Here the child tends to place the responsibility for his shortcomings on the shoulders of someone else. For example, a boy was referred because he was the cause of constant trouble in the school. The psychologist's examination showed that the boy was trying to do work that was entirely beyond him. The boy's attitude in spite of these tests was that the teachers were spiteful against him and were deliberately giving him low marks because they did not like him. He in turn tried to make things difficult for them by misbehaving. The treatment plan in this case consisted partly in working with the school and giving them our view-

point of the case. The boy was given work that was in keeping with his ability and at the same time we worked with him at the clinic in pointing out just how he had faced his particular situation. The result was that during the course of the following year he made a satisfactory adjustment in school. The boy, the school and the clinic all contributed their part toward the solution of this rather difficult situation.

(d) *Hysterical Reactions.*

Under this heading a number of superficially very different cases might be given as illustrations.

A girl of eight was referred to the clinic after a careful study by an ophthalmologist. His findings indicated that the attacks of fluctuating blindness and inability to read were not due to any organic lesion. In this case the clinic felt that although there was sufficient material in the girl's mental life to explain the phenomena we were extremely anxious to avoid the possibility of some obscure physical or neurological condition. This was ruled out and the study of the child and home situation showed a number of causative factors. One factor could be considered as undue insistence on lessons at home, the second factor was wakefulness at night on a fear basis, third was conflict over her origin, and fourth, the consitutional factors that are difficult to evaluate.

(e) *Hypochondriacal Reactions.*

In handling this type of case the most accurate and careful type of medical diagnostic study is necessary. Certainly if anyone is to treat this condition either in a child, adolescent or adult, the starting point of his treatment has to be a demonstration of the fact that no physical disease exists or the degree of the illness. In one of the cases we saw at the clinic the complaint of heart disease had resulted in medical examination and no organic lesion was demonstrable. From the school came the complaint that the girl was failing in her work. Attempts to assure this nine-year-old girl that there was no heart lesion and that she was all right had not been effective because of continued discomfort, palpitation, etc. When the study of the home situation and the child was completed it was evident that this girl's home situation was not satisfactory. Although she was the oldest child she was not capable of assuming the responsibility that the parents had unwittingly placed upon her shoulders. She was worrying about family finance and family problems with which she should at best have had a limited acquaintance. The mother without thinking was inclined to blame her and hold her responsible for any mishap that might occur to the younger children. The psychological tests had indicated that the girl's intelligence was average and that she should ordinarily have no trouble in school. Although the treatment extended over some little time the results were almost at once evident. Treatment here was in the sense of modifying attitudes not only of the parents but also of the child. The evidence of success in treatment is indicated in the dropping out of heart complaints, success in school and a more happy attitude toward the home.

One of the very common factors that cause difficulty is the discussion of the child's symptoms and condition before him whether by the parents or by parents and physician.

(f) *Fear and Worry Reaction.*

A boy was referred to the clinic because of "seizures" which the physician felt were psychic in origin rather than true epilepsy. The fear and worry tendencies of the patient were outstanding components. Treatment in the clinic has been marked by its ups and downs. The mother would occasionally become discouraged with our approach and would go to a physician who would make the diagnosis of epilepsy. The clinic constantly insisted, as did the physician who had originally seen the case, that the seizures were psychic in their origin. This case was also put to the test of a period of observation in a hospital. Here, separated from the mother, no attacks occurred. It seems probable that after about two years of observation and study partly under controlled conditions that we can insist with justification that this is not epilepsy we are dealing with and it seems very probable that we have convinced the mother that the attacks are brought on by some overstimulating situation. For example, an attack might follow within twenty-four hours after an exciting event. Usually an analysis of the period preceding the attack would demonstrate some gross error in management of the child and a marked fear reaction. This, in spite of the fact that the parents were to all intents and purposes rather intelligent.

(g) *Rebellion.*

In this group we find that the individual instead of accepting his limitations and attempting an ade-

quate compensation tries to force his way by unsatisfactory procedures. This behavior may be of various kinds and evidences itself in the home, the school and on the playground. We are most familiar with it in the adolescent who refuses to behave in accordance with social demands. Authority in any form stimulates adverse behavior. Treatment must be based on an understanding of the basic factors.

John, age ten, came to the clinc because his father claimed he was incorrigible. His mother was dead and his grandmother, together with the father, a couple of uncles and an aunt, were all working hard to keep this boy in line. It is evident that here was too much authority which was often inconsistent. The rebellion was actually more to be desired than acquiescence. The family group had to decide on some delegation of authority, the boy on his part had to accept responsibilities within his limitations and certainly he was entitled to some privacy and freedom of action.

(h) *Withdrawal from Reality.*

In contrast to the group that rebels this group tends to withdraw from the difficult situation. A very common device is the tendency to daydream and to live in a world of fantasy. Truancy from school or home or avoidance of playmates may be noticed. In the schoolroom the child may find the work too difficult or, handicapped by a visual or hearing defect, is unable to understand what is going on—one way out is to withdraw into a more pleasing world of fantasy. On the playground physical handicaps or inability to play certain games may result in unsatisfactory relationships and the individual resorts to a companionship with younger children or to solitary occupations.

A boy was referred because he was failing in his school work, was inattentive, listless and at times stubborn. The history revealed that his school progress had been average up to one year ago, when he had had a severe illness with apparently complete recovery. The most outstanding finding was a hearing defect that had not been recognized by the teacher and had not been considered important by the mother. Actually the deafness was of sufficient severity to seriously handicap the boy in the schoolroom. Inattentiveness and stubbornness were very definitely due to failure to grasp what was desired by the teacher.

It might be well to add that frequently complaints are made about inability to see or to hear, when actually the real problem may be due to inability to comprehend or inattentiveness due to daydreaming or concern about some other topic.

(i) *Apathy or Overactivity.*

In cases of apathy or overactivity the question often arises as to whether it is on a physical or mental basis. Attempts to build up the physical health without consideration of other factors are often disappointing.

One must take into account particularly the daily routine, and insistence on a satisfactory program is often the basis for good results. Too often mothers are having difficulty because they are attempting to fit the child into some rigid routine which is recommended by various pamphlets prepared for their consumption without recognition of individual differences, while on the other hand they may be following a *laissez-faire* program which may be equally disastrous. Very frequently the child is to be handled by giving him satisfactory activities and satisfactory playmates. At this time it is not possible and it is not necessary to go into details of proper routine, particularly for the younger child, but many problems are more or less automatically solved when the whole twenty-four-hour program is considered in detail. For example, a mother may complain about inability to get her child up in the morning while forgetting that he does not get to bed at a satisfactory time, possibly a particular radio hour seems to necessitate a late hour. Occasionally routine has been arranged because of adult needs which are not at all in keeping with the needs of the child.

Conclusion.

It has not been possible to take up every type of case with which the clinic attempts to deal nor is it possible to give in detail our handling of one case. We are attempting to meet certain types of human problems that in many cases lie in the mental field while others lie in that very difficult territory between what is physical and what is mental. Our general viewpoint consists of viewing the individual as a whole and even though he may be suffering from a very typical type of disease yet we insist that his particular reaction is the result not only of the disease process but also of his hereditary and experiential background plus the situation in which he must carry on.

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EDITORIALS

OUR "SHOPLIFTING" PROBLEM

Among other conclusions in the Report of the Committee on the Costs of Medical Care is the following paragraph:

"Losses from bad accounts are not peculiar to physicians, but in no other legitimate field of endeavor are the losses so high as in the practice of medicine, nor is there such an attitude of propriety on the part of the public in failing to pay bills."

What a commentary—and all too true a one—on the American propensity of "putting it over." Put in less kind terms, the public by systematized cheap and petty thievery is shoplifting from its physicians their hard earned and dearly bought stock in trade, knowledge.

That knowledge was gained from years of most rigorous training and education—the prime years of youth—often at the added cost of parental self-sacrifice and in many cases true privation suffered by the medical student himself in his effort to learn well his profession.

And when he starts out in practice with unbounded enthusiasm of medical science, true altruism towards all suffering mankind, and a desire to serve faithfully and well his patients, intentionally giving much of his time and knowledge and personal strength for charity, this same young physician is soon disillusioned by deliberate filching on the part of trusted clients.

It is next to impossible to improve the moral conscience of the public at large, but it does behoove every physician in practice to insist on the collection of his just rewards where he knows of the ability to pay them. This is a moral obligation towards his colleagues so that the negligent patient will not prey further upon the altruism of the profession.

No one can deny our full fine willingness to strain our efforts to the utmost with no better reward than satisfaction when the bona fide charity patient is involved, but the deliberate cheating deadbeat and the organized attempts to steal our hard earned and just rewards should be met with a counterattack to force collection rather than an attitude of complacent and injured acquiescence.

If we will get together and collect our bills, "our public" will give us more respect and appreciate our services.

REPORT OF THE MILK COMMISSION OF THE PROVIDENCE MEDICAL ASSOCIATION

Dr. Reuben C. Bates

Certified milk in Providence was obtained from the following farms during the year 1932:

Alta Crest Farm, Spencer, Mass.
Cherry Hill Farm, North Beverly, Mass.
Cocumcussoc Farm, Wickford, R. I.
Fairoaks Farm, Lincoln, R. I.
Walker-Gordon Farm, Charles River, Mass.

Through the co-operation of the Boston Commission we have accepted their certification of three farms in Massachusetts.

Fairoaks Farm of Lincoln, R. I., has been placed under our supervision and their milk is certified by your Commission. During the past year a member of the Commission has visited both local farms each month and their spirit of co-operation has been very gratifying.

Bacteriological and chemical examinations of the milk are made twice weekly in the laboratories of Brown University and during the year over 400 examinations have been performed and 98% tested below the 10,000 bacteria per C.C.

The personnel of the Commission includes Drs. William P. Buffum, Maurice Adelman, William H. Jordon, A. R. Newsam and Reuben C. Bates, Secretary.

	ALTA CREST			HOOD'S (Cherry Hill)		
	B.F.	T. Solids	Average Bacteria Count Per C.C.	B.F.	T. Solids	Average Bacteria Count Per C.C.
Jan.	4.14	12.93	3520	4.82	14.16	6500
Feb.	4.23	13.91	2600	4.90	14.17	4850
Mar.	4.27	13.26	1590	4.85	14.07	3640
Apr.	4.24	13.23	4776	4.81	14.11	3775
May	4.08	12.79	2338	4.75	13.97	2888
June	4.10	12.66	2013	4.63	13.48	6575
July	4.07	12.55	4863	4.49	13.47	2263
Aug.	3.93	12.47	2638	4.38	13.49	1938
Sept.	3.52	12.46	9940	4.12	13.57	1250
Oct.	3.78	12.70	3663	4.78	14.17	1900
Nov.				4.70	14.17	1350
Dec.				4.43	14.44	2541
Total Ave. for year	4.03	12.90	3794	4.64	13.94	3289

	WALKER-GORDON			COCUMCUSSOC		
	B.F.	T. Solids	Average Bacteria Count Per C.C.	B.F.	T. Solids	Average Bacteria Count Per C.C.
Jan.	4.23	13.18	6970	3.89	13.42	20616
Feb.	4.35	13.33	5175	4.25	13.24	13525
Mar.	4.24	13.18	4600	4.43	13.51	4450
Apr.	4.08	12.98	5500	4.30	13.38	6337
May	4.14	12.85	3250	4.14	13.01	10516
June	4.19	12.80	3838	4.43	13.20	9692
July	4.08	12.65	3413	4.39	13.22	10461
Aug.	4.16	12.73	3238	4.39	13.32	5462
Sept.	4.12	12.76	1910	4.30	14.07	3247
Oct.	4.15	13.15	1225	4.68	13.97	2025
Nov.	4.20	13.11	1835	4.75	13.90	1967
Dec.	4.15	13.13	2083	4.86	14.15	1954
Total Ave. for year	4.17	12.99	3578	4.40	13.53	7521

	FAIROAKS		
	B.F.	T. Solids	Average Bacteria Count Per C.C.
Mar.	4.80	13.90	3690
Apr.	4.58	13.85	3655
May	4.38	13.35	4597
June	4.46	12.44	19040
July	3.52	12.41	6792
Aug.	4.59	13.28	7760
Sept.	4.85	13.90	3430
Oct.	4.60	13.66	4119
Nov.	4.68	13.89	2400
Dec.	4.91	13.80	3320
Total Ave. for year	4.54	13.44	5880

CLINICAL-PATHOLOGIC CONFERENCE

RHODE ISLAND HOSPITAL

Case reported by Dr. Charles Gormley.

The following mimeographed history was passed out:

C. P., a married white woman, age 24 was admitted to the R. I. H. in an unconscious condition at 12:45 P. M.

Present Illness: The following history was obtained from the family physician and parents: Ten days before admission the patient had an attack of fever with chills, general aches and pains and malaise described as influenzal. This attack continued for 3 days and then abated, and the patient felt fairly well for the following 2 days, when she had a severe chill with high fever which continued for 3 days. At this time the left lung was found to be dull and no breath sounds were heard. No cough was present. The temperature again dropped, only to recur the next day with a succession of chills. The patient complained of pain in the lower part of her chest (epigastrium) but there was no cough. On the morning of admission she had generalized convulsions, during which it was noted that her back was arched. She had been conscious up to 2 days before admission, when she failed to recognize anyone and had been unconscious since.

Past History: Had always been in generally good health. No detailed history was obtained.

Family History: Non-illuminative.

Physical Examination

Disclosed a well developed young white woman lying quietly in bed, not responding to questions nor stimuli and breathing rapidly and shallowly.

Head: Scalp, ears and nose negative. Pupils equal but reacted to light sluggishly. The eye-lids had moderate tone. The tongue was coated. It was noted that there was dilatation of the alae nasae with inspiration.

Neck: Small, palpably firm anterior cervical glands were present. There was a scar in the left side of the neck, apparently from previously removed glands.

Chest: There were shallow and rapid respiratory excursions, less marked on the left side.

Lungs: The right side was apparently normal. The left side was dull to percussion, especially over the lower lobe, and the breath sounds were distant. The respiratory grunt came through the left lower lobe with a nasal quality. Fremitus, voice sounds and whispered pectoriloquy could not be ascertained.

Heart: The pulse was 98 and the rhythm regular. The blood pressure was 92/40. There was slight increase of the area of dullness to the right of the sternum. The cardiac sounds were masked by the respiratory sounds.

The abdomen and extremities were negative.

Reflexes: The superficial abdominal reflexes were absent. The conjunctival reflexes were weak. The knee and ankle jerks were absent. The biceps and triceps jerks could not be elicited. No ankle clonus nor opisthotonus was noted. There were questionable Babinski and Kernig signs and only slight rigidity of the neck which was, however, not present on subsequent examination. The neck and contralateral Brudzinski signs were absent.

Skin: There was only very slight cyanosis but fairly well marked pallor.

Laboratory Findings: The white blood count was 29,300 with 87% polymorphonuclears. The initial pressure on lumbar puncture was 150 mm. with normal dynamics. The pressure after removal of 35 cc. of rather clear fluid was 60 mm. Two colonies of staphylococcus aureus were cultured from the spinal fluid. Two blood cultures revealed staphylococcus aureus. Inasmuch as the patient was incontinent, no urine was obtained for study. In view of the extreme condition of the patient and the brief duration of the illness in the hospital, no X-ray was obtained.

Progress Notes: The patient rapidly developed cyanosis and was kept in the oxygen tent almost continuously. The temperature, which was 105° on admission, varied between 104° and 105.8°. The respirations rose from 32 to 44 per minute. The patient continued to be incontinent of urine and stools. The pulse suddenly began to fibrillate, but promptly resumed a normal rhythm following the intravenous injection of ¼ mg. of strophanthus. The fundi were examined by Dr. Messinger. He found the right disc blurred, completely elevated and containing large peripapillary hemorrhages. The left disc was blurred and contained a few small peripapillary hemorrhages. The papillary reactions were less marked on the left side.

The patient failed to respond to stimulation, became cyanotic and expired, 25 hours after admission. At no time had she regained consciousness.

Discussion

Dr. Gormley: "This case which is being presented from the second medical service is a young woman twenty-four years old who was brought in unconscious and who died something over twenty-four hours after. She was sent in with a diagnosis of pneumonia and was totally unconscious. No history was obtained until the afternoon of the day she was admitted. An effort was made to obtain a history from her physician, but he was out of town. Physical findings at that time seemed to confirm the suggestion that she had pneumonia and very little was done in the way of treatment. Later in the afternoon when we saw her parents, we found that she had what was called influenza which later developed into pneumonia. This history was—'Ten days before admission the patient had an attack of fever with chills, general aches and pains and malaise described as influenzal. This attack continued for three days and then abated and the patient felt fairly well for the following two days when she had a severe chill with high fever which continued for three days,' etc.

"This girl did not respond very well to the oxygen tent. She died a little over twenty-four hours after admission without regaining consciousness. One of the things we needed most in this girl was an X-ray examination, but her condition was critical, so we did not take one and I did not know until just now that there was one taken. It must have been taken on the way to the ward.

"Our problem with this girl was to explain what her unconsciousness was due to. She was seen on the truck before she was put to bed, and she was seen in the middle of the afternoon, and a third time just before she died. Our best guess as to the cause was that she was developing a staph. meningitis. We had the blood culture report on the morning of the day she died—also, we knew about her positive spinal fluid."

Q.: "Was she given any antipneumococcic serum?"

A.: "Yes, it was given to her on admission but we had not proved the type of her pneumonia.

"It seems to me that the question in this case is the relation between her sudden acute respiratory illness (if the history is correct) and her unconsciousness. I have asked Drs. DeWolf and Burgess if they will say something."

Dr. DeWolf: "The question of this case seems to me one of an overwhelming septicemia. The woman lived for eleven days according to this history, and going over it you notice at the beginning she was sick for three days and then she was better for a few days and then again very ill. Some of this brings back the story of the old 'Flu' cases. First she was suffering for three or four days and then seemed to get better, and then pneumonia came along and the patient died. There was no question, of course, that the lungs were involved, and really, from the academic point of view, it comes to my mind as to whether there may have been fluid in that chest as well as pneumonia. The heart was pushed over to the right, and you note somewhere here that the breath sounds were shallow and it looks as if there might have been some fluid as well as pneumonia. I think one is struck by the fact that the knee and ankle jerks were absent. The Babinski and Kernig were not marked and the spinal pressure was normal. Apparently it looks as if there might have been a shut off somewhere in the brain. There is no note here on any abdominal findings, but with this type of infection I think possibly there might have been something in the abdominal organs."

Dr. Gormley: "It says on the last line of the first page that the abdominal organs and extremities were negative."

Dr. DeWolf: "She had a blood stream infection, and it seems as though she must have had a meningitis, with all the findings, and that would account for her convulsions and her unconsciousness. The point that came to my mind is that she had small cervical glands with an old scar. This thing does not look tuberculous in any way, and yet it comes to mind as you read it over and a T.B. infection can be very virulent. I am making a guess before we look at the X-rays that it was pneumonia."

Dr. Burgess: "My impression was like Dr. DeWolf's. She was overwhelmed by that infection. It brings up an interesting study in 1918. There was a large series of influenza reported in one of the Southern camps. That seemed to account for quite a number of those influenzas in 1918. Since that time we saw the same thing in this hospital. During that outbreak we had one or two of this type. In 1929 we had two cases of pulmonary deaths from influenza. In one we found staphylococcus aureus in the blood stream. I feel that the staphylococcus is certainly about the worst infection to invade the blood stream. I want to ask

whether there are any skin indications in these cases at all. I think she was overwhelmed by the staph. infection. There is probably a massive pneumonia with areas of softening as you often get."

Dr. Gormley: "I would like to bring to Dr. Burgess' attention the white blood count of 29,300."

Dr. Burgess: "Yes—I meant to add that. In those cases that Dr. Gormley spoke about that we reported a few years ago and the so called agranulocytosis there was a leucopenia."

Demonstration of X-ray Film

Dr. Batchelder: "The film brings out several points of confirmation of the physical findings. An area of dullness in the lower two-thirds of the chest. At the time it was reported pneumonic consolidation, but a note was also added that the possibility of the presence of a little fluid should be considered. We felt there was both consolidation and a little fluid. Here we have positive evidence of the T. B. adenitis, calcified cervical glands. No evidence of tuberculosis in either apex. The heart is perhaps enlarged a little but not much displaced to the right so the trachea is in the mid line."

Dr. Gormley: "It is noted in the notes that the heart was slightly to the right of the mid line; that was a clinical observation."

Q.: "Did you pay any attention to the neurological findings?"

A.: "We paid all our attention to the neurological signs. We were trying to explain what caused the changing in the discs and her complete unconsciousness. It looked almost when she came in as if she were getting a respiratory paralysis."

Demonstration of Postmortem Material

Dr. Clarke: "On external examination there were numerous petechial hemorrhages over the skin and there was a scar of an old operation on the abdomen, and when we opened it we found the appendix and right tube and ovary were gone. In the left pleural cavity was 300 cc. of turbid fluid and in the right 250 cc. of fluid. Here is the left lung. The most interesting thing about it is that there is no pneumonia in it. It weighed 200 grams. The lower lobe of the lung is collapsed, while above it is fairly normal. The pericardial sac contained 200 cc. of slightly turbid fluid and the surfaces are covered with a thin layer of fibrin. A typical so called "bread and butter heart" of a fibrinous pericarditis. The heart is not very large. It weighs 325 grams. When we open the heart we find the pulmonary valve is rather interesting in that there is a congenital anomaly. The valve has only two cusps instead of the usual three. Both of the coronary orifices are small but apparently normal. The other cusp of the heart is covered with vegetations and when we come to examine closely, we see this vegetation extending down on the endocardial surface and a probe passed in there enters a large abscess cavity and comes out on this side in the right auricle and there is a third communication through the surface of the left ventricle, so we have a large abscess of the heart wall, an abscess located in the interauricular septum and perforating into both ventricles and in the right auricle.

"Here is the spleen. It is quite large. It weighed 350 grams and in the spleen is a sort of wedge-shaped area of a different color slightly raised on the surface: an infarction of the spleen. Here are some pieces of kidney. You can see those little whitish areas in the cortex whose shape and color show a typical of infarcts."

Q.: "Is that recent?"

A.: "It is white so it must be three or four days old.

"In the liver we found one abscess on the under surface of the right lobe of the liver. We have here some sections from the brain. This is the right pareital region, and you can see it is hemorrhagic, blood stained, and before fixation these parts were much softer than the surrounding tissue. The microscope shows that all of these infarctions are septic infarcts. That is, they are infected. Staph. aureus was cultured from the heart's blood at postmortem. The original diagnosis of staphylococcic septicemia is, of course, the correct one, but the interesting thing about it is that the primary lesion is apparently located in the heart with an unusual abscess in the heart wall and from that and from the vegetations of the valves emboli to various organs. The only lung pathology is secondary to cardiac failure. The liver also shows a little chronic passive congestion."

Dr. Gormley: "I would like to call your attention to the X-ray and the heart which is not pulled toward the side where the atelectasis exists. Perhaps that fluid was coming rapidly at that time. It was taken on her way to the ward and at that time certainly she had no fluid in the right pleural cavity. Yet at that time the heart was pushed over and either she had a great deal more fluid in that cavity than we would diagnose, and it is noted in that pathological finding of the diagnosis that that heart was not pulled over to the side."

Dr. Batchelder: "In the case of massive atelectasis the collapse is the primary thing and the heart is pulled over. In this instance it seems as though the collapse must have been secondary to the fluid and so there was no pull on the heart."

Dr. Burgess: "Isn't it worth saying a little more about that valve. Do not such congenital anomalies predispose to endocarditis? I should think it worth more than passing attention."

Q.: "How much fluid was in the right chest?"

A.: "250 cc."

Q.: "According to the postmortem findings, would this case be classified as subacute bacterial endocarditis?"

A.: "No. As far as the endocarditis is concerned, it would be acute ulcerative endocarditis, staphylococcic.

"Apparently all the abscesses here were infarcts. It is not exactly the picture you get with the so called pyemia. These are embolic abscesses."

SOCIETIES

Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Lucius C. Kingman, Monday evening, December 5, 1932, at 8:55 P. M. The records of the previous meeting were read and approved. The Standing Committee having approved their applications, the following gentlemen were elected to membership in the Association: Charles Bradley, David R. Brodsky, Morris L. Grover, Clarence J. Riley, Frederick R. Riley, and Walter C. Weigner. On motion of Dr. Brackett, the following resolution was adopted:

At the Annual Meeting in January, 1933, the Medical Milk Commission shall be appointed by the President, to consist of five members, one for five years, one for four years, one for three years, one for two years and one for one year; and thereafter one member shall be appointed by the President at each annual meeting, to serve for five years.

The first paper of the evening, "The Hemolytic Streptococcus," by Dr. Dennett L. Richardson and Dr. Harold E. Smiley, was presented by Dr. Richardson. He pointed out the great number of different types of infection caused by this organism, including scarlet fever, tonsillitis, laryngitis, pharyngitis, and erysipelas. Since 1929, at the Chapin Hospital, all patients on admission have had throat cultures made to determine the presence of hemolytic streptococcus, and this paper is based on the results obtained. These cultures are made on standard blood agar plates, which reveal the presence of either hemolytic streptococcus or diphtheria bacillus. Dr. Richardson showed that, in the main, the incidence of carriers of hemolytic streptococcus is directly dependent upon the incidence of scarlet fever in the community. The diagnosis of scarlet fever by culture alone is not safe, but a positive culture is strong presumptive evidence. The absence of hemolytic streptococci in discharge cultures is not definite proof of inability to spread infection. The detection of these organisms in any throat culture should call for careful isolation of the patient to prevent the spread of serious infection.

The paper was discussed by Dr. A. M. Burgess, who pointed out that blood stream infections from this organism are not necessarily fatal, and do not always call for a grave prognosis; and by Dr. E. S. Brackett, who gave interesting data concerning infections by this organism in puerperal patients.

"Avertin Anesthesia in General Surgery" was the subject of the second communication presented by Dr. Anthony V. Migliaccio. He described the physical characters of trideromethanol, pointing out the reasons for extreme care in the preparation of the anesthetic mixture. He stressed the absence of trouble if the usual precautions are observed. The technique of the administration was described in detail. Dr. Migliaccio pointed out that respiratory excursions become shallower under this anesthetic, and that this can be offset by the administration of CO_2. At present, avertin is used only as a basal anesthetic, and no attempt is made to obtain complete anesthesia. This anesthetic is particularly useful in gynecological cases, operations about the mouth, and thyroid cases. The contraindications are advanced kidney disease, severe liver damage, obesity, ulcerations of the rectum, and debility. A series of seventy-five administrations was reported. These administrations included operations on the head and neck, thorax, abdomen, perineum and extremities. The paper was discussed by Dr. W. MacGilord, chief anesthetist of the Memorial Hospital of Worcester and instructor in anesthesia at the Harvard Dental School, and by Dr. A. H. Miller.

The rest of the meeting took the form of a surprise tribute to Dr. Charles H. Leonard, whose ninety-first December was to come December 29th.

Dr. Henry J. Hoye showed a movie featuring Dr. Leonard in the Memorial Day parade. After this, Dr. John E. Donley gave a delightful short account of Dr. Leonard's career, mentioning his Civil War service, his presidency of the Medical Association in 1889-1891, and the tremendous amount of vaccination work done in his later years. Dr. Donley in a charming manner pictured the scholarly and humanitarian interests of Dr. Leonard, and the friendship and esteem of the Association, at whose meetings he is such a constant and interested attendant.

At 10:45 P. M. the meeting adjourned for a collation and Dr. Leonard cut a handsome birthday cake decorated with candles which formed the figures 91.

Attendance, 200. This probably is the largest meeting the Association has ever held.

Respectfully submitted,

WILFRED PICKLES, M.D.,
Secretary Pro Tem.

The annual meeting of the Providence Medical Association was called to order by the President, Dr. Lucius C. Kingman, Monday evening, January 2, 1933, at 9 P. M. The records of the previous meeting were read and approved. The annual reports of the Secretary, the Standing Committee, the Reading Room Committee, the Treasurer, and the Medical Milk Commission were read and accepted.

The paper of the evening was presented by Dr. Daniel Fiske Jones of Boston on the subject, "The Diagnosis and Treatment of Carcinoma of the Colon and Rectum." He deplored the lack of interest on the part of the general practitioner in this subject and suggested that any patient suffering any change in bowel habits or having any bleeding should be investigated for the presence of carcinoma in the colon. Bleeding is the most important symptom and should always call for study. Constipation is a late symptom, and the prevalent use of oil serves to mask this symptom very effectively for many months. This condition then passes into one of diarrhea or, as the patient will usually phrase it, frequent bowel movements. Pain is of importance in these cases, but patients rarely admit the presence of pain and it is not an outstanding symptom. Loss of weight is a late symptom and only comes when loss of appetite causes it.

Masses in the abdomen are frequently missed because of incomplete examination. Digital examination is of the greatest importance and should be done with the patient in the sims position. Vaseline is a better lubricant than the lighter substances commonly used. Digital examination should always be made before proctoscopy is undertaken. Proctoscopy should be used to determine the source of bleeding, but this will not always show the growth. The proctoscope can be used as an instrument for feeling growths as well as for seeing them.

X-ray examination should not be undertaken until digital and proctoscopic examination have been used. Forty per cent of cancers of the rectum are missed, and twenty-five per cent of cancers of the colon are missed on the average X-ray examination. The greatest errors are made at the flexures and in the cecum. To complete the diagnosis a specimen should be removed. This not only confirms the diagnosis but tells us the degree of malignancy.

Radical operation in carcinoma of the rectum should be undertaken much more frequently than it is done at the present time. Colostomy should not be regarded with such fear as is common; patients can live in comfort and happiness with a colostomy, if they can be kept constipated and have a movement once daily with an enema.

Radium is of value in a small number of cases, particularly in those patients having lateral growths. It cannot be used in annular tumors. It also causes a great deal of pain and discomfort, and surgery must be considered preferable in the great majority of cases.

Dr. Jones completed his presentation with a series of slides showing 50 to 70 per cent of patients alive five years after operation.

The President's annual address was then delivered by Dr. Kingman, who urged the need of more work on the part of the members of the Association. More papers should be written and there should be brisk competition for the privilege of reading these at meetings of the society. Discussion should be freer and there should not be so great deference to authority. Case reports should be more frequent, as should be the presentation of specimens.

Dr. Kingman urged greater support of the Rhode Island Medical Society as the organized body of medical men in the state.

The election of officers was then proceeded with. On motion of Dr. Mowry the by-laws were suspended and the officers as nominated were elected by the casting of a single ballot by the Secretary.

In accordance with Article I, Section 6, of the by-laws, the Standing Committee made the following nominations for offices and committees for the year 1933:

For President—James W. Leech, M.D.

For Vice President—Charles F. Gormley, M.D.

For Secretary—Peter Pineo Chase, M.D.

For Treasurer—Charles F. Deacon, M.D.

For member of the Standing Committee for five years—Lucius C. Kingman, M.D.

For trustee of the Rhode Island Medical Library for one year—Henry J. Hoye, M.D.

For Reading Room Committee — George S. Mathews, M.D., Elihu Wing, M.D., Guy W. Wells, M.D.

For Delegates to the House of Delegates of the Rhode Island Medical Society—H. Libby, M.D., A. W. Mahoney, M.D., J. A. Gilbert, M.D., C. W. Skelton, M.D., T. Grzebien, M.D., F. W. Dimmitt, M.D., R. DiLeone, M.D., L. I. Kramer, M.D., W. A. Horan, M.D., P. C. Cook, M.D., J. J. Hoey, M.D., R. R. Baldridge, M.D., C. C. Dustin, M.D., E. A. Sharpe, M.D., J. G. Walsh, M.D., C. H. Woodmansee, M.D., R. H. Whitmarsh, M.D., V. J. Oddo, M.D., W. Hindle, M.D., P. P. Chase, M.D.

For Councillor for two years — Clinton S. Westcott, M.D.

The President appointed the following committees:

For Collation—Dr. A. V. Migliaccio and Dr. Charles J. Ashworth.

For Publicity—Dr. F. N. Brown, 3 years; Dr. C. F. Gormley, 2 years; and Dr. I. Gerber, 1 year.

Medical Milk Commission—Dr. H. P. B. Jordan, 5 years; Dr. H. G. Calder, 4 years; Dr. R. C. Bates, 3 years; Dr. A. R. Newsam, 2 years; Dr. W. P. Buffum (chairman), 1 year.

Public Relations—Dr. L. C. Kingman, 3 years; Dr. M. Adelman, 2 years; Dr. C. F. Gormley, 1 year.

The following sums were voted to the Medical Library: For appreciation of building privileges, $450.00; for reading room, $250.00; for binding periodicals, $200.00. The annual dues were voted to be $5.00.

Dr. James W. Leech was then escorted to the platform by Drs. Herman C. Pitts and A. A. Barrows.

The meeting adjourned at 10:30. Attendance, 155. Collation was served.

Respectfully submitted,

Wilfred Pickles, M.D.,
Secretary Pro Tem.

HOSPITALS

St. Joseph's Hospital Staff Association

A meeting of the St. Joseph's Hospital Staff Association was held January 12, 1933, at 8:45 P. M. in the new auditorium on Peace Street.

Program follows: Discussion of the Thymus Gland by the Pediatric, X-ray and Pathological Departments, with report of cases.

Collation was served.

Frank E. McEvoy, *President;*
Earl F. Kelly, *Secretary.*

NOTICE

The American Board of Obstetrics and Gynecology proposes to hold the first of a series of annual dinners for Diplomates of the Board and their friends on the first day of the Scientific Session of the American Medical Association meeting in Milwaukee, at which time the successful candidates from the examination of the day before will be introduced in person, one or more addresses will be made by officers of the Board and a Round Table Conference and general discussion of the activities of the Board will follow. Diplomates expecting to be in attendance at the Scientific Session of the American Medical Association are urged to make reservation for this subscription dinner as early as possible through the office of the Secretary of this Board. Further announcements will be made through the Journal of the American Medical Association and the American Journal of Obstetrics and Gynecology.

The next written examination and review of case histories will be held in cities throughout this country and Canada, where there are Diplomates who may be empowered to conduct the examination, on April 1, 1933.

The next general, clinical examination is to be held in Milwaukee on Tuesday, June 13, 1933, immediately preceding the annual session of the American Medical Association. Reduced railroad rates will apply.

For further information and application blanks, address the Secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh, Pennsylvania.

Thank You Doctor

The baby is doing splendidly and Tom and I are so pleased.

When you first told me that Junior would have to have bottle feedings I thought I was due for a lot of trouble and work because I remembered what a time my sister had when her baby was on the bottle. She sent for a formula that was advertised to be recommended by many authorities, but something was wrong. She used to spend hours in her kitchen mixing this, that and the other thing. And in spite of all her trouble, her baby fretted and cried and didn't gain properly.

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Junior reaches to take the bottle right out of my hands and drinks it all up. And he's the *best* child. Always happy when he's awake, and sleeps the whole night through.

And talk about a picture of health! I believe he would take first prize in any baby contest.

I'm going to bring him down to your office Wednesday as you suggested. That S.M.A. folder you gave me says even a breast fed baby should be under the supervision of a physician and I think myself that it's better to *keep* the baby well than to wait until trouble starts.

We certainly want to thank you for bringing our baby along so well, Doctor. It increases our confidence in you as our family physician. Tom has already "said it with dollars", but I wanted to thank you personally, too.

And I'm going to persuade Mrs. Brown,—that's my neighbor with the baby that's not gaining—to come along on Wednesday so you can prescribe the proper diet for *him* too.

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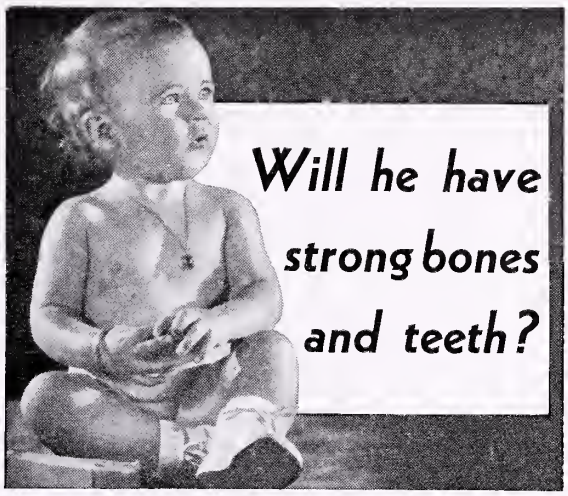

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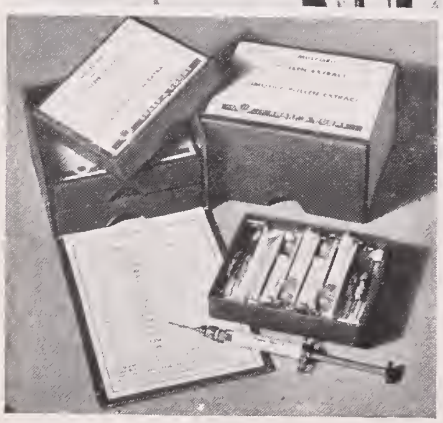

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ORIGINAL ARTICLES

THORACOPLASTY IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

By Eske H. Windsberg, M.D.
223 Thayer Street, Providence, R. I.

The operation known as thoracoplasty is one that is designed to reduce the size of one side of the chest capacity by means of multiple rib resections. Thereby the contained lung is collapsed and compressed. Although employed for the most part in the treatment of certain forms of tuberculosis, thoracoplasty is indicated also in other types of intrathoracic and pulmonary disease, notably in bronchiectasis, in non-specific pulmonary abscess, and in chronic empyema. It may also be indicated supplementary to the removal of large intrathoracic tumors and after lobectomy.

Here we are concerned especially with the application of thoracoplasty to the collapse treatment of chronic pulmonary tuberculosis. Of operative procedures, Thoracoplasty is one of several that may be employed where surgical interference is indicated. Thus we have apicolysis or extraplural pneumolysis as devised by Tuffier, intrapleural pneumolysis as developed by Jacobaeses and Unverricht, paralysis of the diaphragm by means of phrenic nerve exaeresis, and intercostal neurectomy. All of these procedures have their specific indications and often are employed in conjunction with one another as well as with thoracoplasty.

Collapse therapy in the treatment of pulmonary tuberculosis is today a well established principle, and is an elaboration of the rest cure. Now, as is well known, the importance of rest in the treatment of tuberculosis has only in recent years become to be fully appreciated and widely accepted. In the middle of the last century, Rokitansky taught that in the consumptive the heart was too small and that it must be strengthened by carefully regulated exercise. His teachings were followed by Herman Brehmer, who was a pioneer in the sanatorium treatment. In practice, Brehmer, believing that the heart was weak, inaugurated regular though short rest periods. Thus he was the first to employ rest systematically though incidentally. In 1887 he was able to report many cures, something no other plan of therapy previously employed could claim.

As late as 1902 Brehmer's pupil Dettweiler firmly believed in the theory that fresh air cured tuberculosis, and thought exercise to be injurious. He therefore instituted long periods of rest in the open air. With him, too, rest was only incidental to the treatment. According to Pratt, it remained for Trudeau to become the first advocate of rest as the prime factor in a successful therapeutic plan. In 1916 Webb introduced postural rest for unilateral cases. For many hours each day the patient lies on the affected side, thereby curtailing its respiratory activity and allowing a more complete degree of functional and physiological rest.

The development of artificial pneumothorax by Forlanini in 1894 and Murphy in 1898, and the cures obtained by its use as evidenced by clinical and roentgenological data, demonstrated conclusively the effectiveness of complete rest. Pneumothorax, when successfully carried out, accomplishes complete selective rest, functionally and physiologically to a degree not possible of attainment by any other means. Due to pleural adhesions, pneumothorax cannot be effected in about 20% of individuals in whom collapse therapy is indicated. When the adhesions are string-like and few, they may be cut across by means of a cautery inserted into the pleural cavity under the guidance of a thoracoscope—that is, by means of intrapleural pneumolysis. The number of cases suitable for this procedure are few. Usually the adhesions are extensive and broad. In a limited number of instances extrapleural pneumolysis and paraffin filling will be the procedure of choice. Generally, when pneumothorax fails, thoracoplasty is the only suitable operation available. It offers a degree of collapse with reduction of lung volume which more closely approaches that of successful pneumothorax than is produced by means of any other extrapleural procedure.

*Read before the Providence Medical Association, May 2, 1932.

Thus thoracoplasty carries out by surgical means the idea of rest which has been the guiding principle and the only firmly established principle in the treatment of tuberculosis whether of the lungs or of other parts of the body. Furthermore, as has been indicated, thoracoplasty was developed to meet a specific situation in the treatment of pulmonary tuberculosis.

Pulmonary tuberculosis was not subjected to surgery until recent years chiefly because tuberculous patients are very poor surgical risks. Further, it is only in recent years that the many pitfalls surrounding thoracic surgery have been circumvented. These bars to surgical interference have been overcome in the past three decades; and especially in the past ten years, the surgery of pulmonary tuberculosis has been placed on a relatively safe plane. However, to effect a low mortality, a respect for the dangers entailed in thoracic surgery is essential; team work in the operating room highly desirable; and close co-operation between phthysiologist, roentgenologist, anesthetist, and surgeon indispensable.

Sir James Carson more than 100 years ago outlined the rationale upon which modern pulmonary compression therapy has been developed. He pointed out that the elasticity, condition of extension, and constant movement of the lungs prevent healing from taking place. Given an ulcer or an abscess cavity anywhere in the body, as every surgeon knows, chronicity will be the rule if the lesion is subjected to pull and tug, to constant motion, and to stretching. Furthermore, when raw surfaces are unable to come into close contact healing cannot progress favorably. This is true whether the underlying pathological lesion is tubercular or non-tubercular, whether situated in the lungs or in other parts of the body. The converse of this is also true.

In 1885, de Cerenville of Lausanne practiced the resection of ribs overlying cavities due to tuberculosis. The following year Quinke proposed small rib resections for non-cavernous types of the disease, as well as for cavernous types. In 1901 Garre and Quinke advocated thoracoplasty for hemoptysis. During this early period the operations were for the most part void of results. Brauer, an internist, in 1906 argued that not enough of the bony thorax was being removed. Friedrich, upon Brauer's suggestion, effected a complete removal of the second to the ninth ribs inclusive from the transverse processes around to the junction of the cartilages in front. This extensive rib resection produced some cures but the mortality was terrific. This led to the development of the Wilms-Sauerbruch operation as practiced today throughout the world. It was popularized by Sauerbruch, now working at the Charite Hospital in Berlin. However, many of the essential details were first suggested or practiced by others. Thus Brauer suggested a two-stage procedure in place of the one-stage which carried a prohibitive mortality of about 50%, due to surgical shock. Brauer also suggested resecting the ribs subperiosteally to allow regeneration of bone and prevent chest wall flutter. In the extensive operations of Friedrich, many patients died within a month from anoxemia brought about by chest wall flutter with its concomitant mediastinal flutter because of the absence of all bony support. Resection of the ribs paravertebrally was introduced by Wilms in 1911 on the basis of experimental work conducted by Gourdet in 1895. Gourdet proved that small paravertebral resections effected a greater diminution in the size of the chest cavity than that which could be obtained by similar resections laterally or anterolaterally. He showed the importance of removing the ribs as far posteriorly as the transverse processes. Sauerbruch was original in including the first rib and the tenth and eleventh ribs in the paravertebral resection. In 1924 he declared that the first rib must be shortened under all circumstances.

Thus in the modern operation, known as extrapleural paravertebral thoracoplasty, four to twelve centimeters of all the ribs, excepting the twelfth, are resected subperiosteally from the transverse processes forward. Graded thoracoplasty, as advocated by Hedblum, divides the operation into three, four or more stages, according to the demands of the individual case. The entire operation should never be done in less than two stages. Division of all the ribs close to the spine allows the thoracic wall to be drawn downward and inward by the constant though slight suction within the chest, as well as by contraction of the muscles of the trunk. All supports, including in particular the first and eleventh ribs, must be severed. This method has proven effective in hundreds of cases and has entailed a comparatively low mortality. Having been made relatively safe, the applicability of the procedure has been greatly increased so that today many more patients are receiving its benefits than was thought possible five or ten years ago.

On this continent, according to Archibald, up to 1914 only three thoracoplasties had been performed. Since then about 1500 have been carried out. To Alexander of Ann Arbor, Archibald of Montreal, and Lilienthal of New York belongs the credit of popularizing in this country this operation first conceived and perfected in Germany.

The judicious selection of patients for operation will insure a high percentage of good results following surgical interference. Surgical treatment should be considered in all unilateral cases that do not respond favorably after a reasonable period of treatment at a well regulated sanatorium. Of these unilateral cases that come up for consideration, only the ones who possess sufficient natural defensive powers to tuberculosis will be selected for thoracoplasty. In this selection of cases, the clinical progress and roentgenological data are of the greatest importance. Archibald has grouped such cases into three main classifications. And though few cases fall definitely into any one of these classes, yet, a useful guide is supplied:

First: There are the "good chronic" cases.

Second: There are the chronics who are showing signs of slipping.

Third: There are the bad chronics.

The good chronic patient is one who has given proof of defensive powers because he is a chronic. He is not getting any better nor is he getting worse. His general condition is good, there is persistent cough, and a moderate amount of sputum positive for tubercle bacilli. Roentgenologically, there is evidence of scar tissue formation and contraction; cavity formation is present but not excessive. The patient is condemned to spend the rest of his life curing.

The chronic patients who are showing signs of slipping even with bed rest, present slight fever and an elevated pulse. They have shown evidences of fibrotic contraction in the past, but this is now slowly failing.

The bad chronic patients present persistent fever, marked elevation of the pulse and a steady loss of weight. There is evidence of considerable and increasing cavitation. In this last group, the underlying pathological changes in the diseased lung will determine the advisability for or against operating. It is in this group that an injudicious selection makes for a high mortality and for poor results.

There is a fourth class of patients in which persistent recurring hemorrhages predominate in the clinical picture. Flare-ups of fever, elevation of pulse and malaise accompany each hemorrhage. When pneumothorax cannot be induced, thoracoplasty promises good results in many of these patients.

Each patient who comes up for consideration is carefully studied to determine the predominant pathological status in the bad lung. Here the X-ray studies are an essential aid. From this viewpoint, the predominantly fibroid or productive type of tuberculosis is the most suitable for surgical collapse therapy. In contradistinction to the above, there is the type of tuberculosis in which the predominant lesions are of an exudative nature with little or no tendency toward scar tissue formation. This is not a favorable type for surgery.

Thoracoplasty is not a cure for tuberculosis. It promises only to be an aid to nature's way of healing. In the good chronic cases, there is evident on X-ray examination a contraction of the hemithorax. This is accomplished essentially by scar tissue contraction. There is effected a narrowing of the interspaces between the ribs, a pulling over of the mediastinum and an elevation of the diaphragm. Further, the mobility, during respiration, of the diseased side of the thorax is greatly diminished. All these phenomena occur naturally in patients who show resistive powers to the ravages of the disease. All these things thoracoplasty tries to effect more completely.

Thus, following thoracoplasty, the cut rib ends spring inward and downward, narrowing the interspaces. Regenerated bone bridges the remaining gaps between the cut ends of each rib as well as between adjacent ribs. This causes fixation of the chest wall, so that, with the addition of phrenicectomy to paralyze the diaphragm, practically all respiratory activity of the diseased lung is removed. The lung is placed at anatomical and physiological rest and is reduced in volume to about 30% of its normal cubic capacity.

Anatomical rest of the lung, combined with the compressing effects of the operation, brings about a stasis of lymph, and a passive congestion of blood. This results in a remarkable stimulation of fibrous tissue growth. Lymphatic absorption of toxic products from the diseased lung ceases. Compression of the lung, aided by the profuse proliferation of fibrous tissue reduces the size of cavities; and by bringing their walls into apposition their healing and ultimate obliteration is made possible. All of the phenomena mentioned above have been dem-

onstrated by clinical observation, by X-ray evidence, by means of experiments with animals, and finally by autopsy studies in patients who have died many years after a thoracoplasty.

Recent figures in large series of cases show an average mortality directly attributable to operation to be about 13%. This occurred in 1,159 patients, the composite statistics from operators all over the world collected by Alexander in 1925. In these 1,159 cases there were 61% favorable results with 36% actual cures. In the words of Alexander, "this is a remarkable record in view of the fact that scarcely one of these patients was expected to survive his disease by continuing with artificial pneumothorax and sanatorium régime."

A more detailed idea of results following thoracoplasty is given in a series of 172 cases reported by Archibald in 1929. (Let us recall that he groups his patients into the "good chronics," the "chronics who are slipping," and the "bad chronics.") Of good chronic cases he had 47, with 4% mortality and 80% favorably influenced. Of conditional chronic cases he had 71, with 4% mortality and 62% favorably influenced. Finally, of bad chronic cases he had 54, with 26% mortality and only 20% favorably influenced. (Of the entire 172 cases, there were obtained 104 practical cures.)

To maintain a low mortality it is important to make a careful selection of cases. However, as Lilienthal has stated, "it cannot be to the credit of surgery to refuse help in any case, no matter how desperate, merely to improve statistics."

Further, to maintain a low mortality it is important to avoid doing too much at any one time. Judgment in determining when the patient has had enough operating is most important. In one of the European clinics I remember seeing a surgeon perform a complete thoracoplasty at one sitting. He worked so well that only 35 minutes were consumed in the entire procedure. I saw him carry out three such operations and in each instance the patient died within two or three days post-operatively. The operation was beautifully executed but the physiological derangement of the cardiac and respiratory functions was too marked in its suddenness and simultaneous extent for the patients to withstand without fatal issue.

The development of acute tuberculosis or of aspiration pneumonia in the sound lung accounts for most deaths. Paroxysmal respiration and mediastinal flutter with loss of vital capacity contribute to the mortality. Wound sepsis accounts for a few deaths.

Final results in this field of surgery are usually tabulated according to the suggestion of Dr. Sauerbruch, who has done more of this work than anyone else in the world:

1. *Apparent complete cure* implies freedom from any symptoms of tuberculous activity for at least one and one-half years, no sputum, and ability to perform a full day's work.

2. Clinical cure implies freedom from any symptoms of tuberculous activity for at least one and one-half years, no more than a few cubic centimeters of sputum without tubercule bacilli, and ability to do a satisfactory day's work.

In addition, of course, there will be cases who show great improvement, some who show slight improvement, some who are worse, and finally there will be the deaths. At the end of a five-year period in a large series of cases one may expect:

Cures	33%
Improved	33%
Unimproved, worse, or died	33%

Now this is most encouraging since thoracoplasty is offered to a class of patients having the far advanced type of tuberculosis with cavitation, in whom all conservative forms of therapy have failed, and of whom only 10% would still be alive at the end of the same five-year interval without surgical intervention. These facts were convincingly brought out by Dr. H. L. Barnes from his study of 1,454 tubercular patients with cavities in their lungs, covering a period of 22 years. Eighty-five per cent of these patients died within three years, and 90% died within five years after the recognition of their cavities. Eighty-two per cent of patients with small cavities died within three years. This was true also of patients who presented "honeycombing" on X-ray examination.

Eight cases* of thoracoplasty have been carried out at the Miriam Hospital during the past eleven months. (To April, 1932.) Too short a time has elapsed to warrant reporting results in these patients. However, a preliminary report may be justified merely stating whether the operation thus far has favorably or unfavorably influenced the patients' disease and general condition. In this small series of eight cases, embracing twenty-four separate operations, there has been no mortality; six have been favorably influenced, and two unfavorably. Of seven patients who had a positive sputum

before operation, three have been persistently negative since operation. Of six patients who showed streaks of blood in their sputum, five have not streaked since the operation. During the course of the ensuing years these patients will be carefully followed to determine the true end results.

I wish to express my gratitude to Dr. H. L. Barnes, Superintendent of the State Sanatorium at Wallum Lake, R. I., and to the Trustees and Staff of the Miriam Hospital, Providence, for making this work possible. Thanks are also extended to Dr. Isaac Gerber for his valuable aid in the roentgenological aspects of the work, and to Dr. M. Saklad for his interest in the special anesthesia problems.

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*Since this paper was read the number of cases has been brought up to a total of 18, embracing 52 operations. There has been no operative mortality. One patient died 10 months after operation from the natural progress of his disease complicated by generalized lymphadenopathy. One patient is unimproved, and 16 are improved. Of these 16 patients, 6 are free of all symptoms of tuberculosis, 5 are greatly improved, and 5 are moderately improved. Of the 17 patients still living, 16 had tubercle bacilli in their sputum before operation, 12 of these are now negative; 10 had blood in their sputum before operation, 7 of these have not shown blood in their sputum since operation.

EXTRA-PLEURAL THORACOPLASTY IN PHTHISIS*

RESULTS IN 22 CASES

By Dr. Harry Lee Barnes

Wallum Lake, R. I.

Our first case selected for Thoracoplasty was sent to Dr. Howard Lilienthall in 1921, but after going to New York she lost courage and declined the operation. The first of our cases to be operated on was by Dr. Lilienthall in 1925. Since then 22 of our patients have received extra-pleural Thoracoplasty.

These patients were all predominantly one-sided cases. All had had the bed rest, good food, open air sanatorium regimen for periods varying from a few months to several years.

In all of these cases, pneumothorax treatment had been tried by our staff. In 11 cases we had been unable to establish pneumothorax and in 11 a limited pneumothorax had been established, which had tended to check but had not cured the disease. Pneumothorax treatment was followed by negative sputum in two of the cases.

Phrenicectomy which had been performed in 12 or 54 per cent of the cases had been followed by a closure of cavities in one case, negative sputum in

*Discussion of Dr. Windsberg's paper on "Thoracoplasty," at a meeting of the Providence Medical Association, May 2, 1932.

one other case, and a limited amount of benefit in a few more, but it had failed to cure.

Two of the four negative sputum cases had had repeated attacks of streaked sputum, the loss of blood being small, while the third case had recently had enormous pulmonary hemorrhages which had brought him near death. The fourth negative sputum case had tuberculous empyema.

Eighteen of these twenty-two patients still had tubercle bacilli in the sputum and twenty-two had X-ray evidence of cavities. All these patients were well nigh hopeless from the standpoint of cure, but we might expect them to live on for periods varying from a few months to a few years, until the spread of the lesions in the good lungs terminated life.

As all of these cases were patients at the State Sanatorium who were sent to hospitals in Boston, New York, Ann Arbor or Providence for operation, the surgical work is unknown to me except from the reports, and it will not be considered in detail.

Most of these patients had three stage operations but in at least two there were four stages, as anterior or lateral costectomy was added to the usual posterior operation.

Patients who accept thoracoplasty must take the risk of mortality from the operation, which in this series was only 4.5 per cent, and the risk that the operation will fail to give adequate collapse, which in this series was about 20 per cent. This last risk should be reduced in the future through improved technique and skill of the operators. The risk of a spreading lesion in the contra-lateral lung has amounted to about 22 per cent and defeats the purpose of the operation, but it should not be charged to the operation, for without this operation nearly all the patients will sooner or later have the same condition. Even though there appears to be a good surgical collapse resulting from the operation and even though there is no spread of the lesion in the contra-lateral lung, yet some cases do not recover.

I am hopeful that to the 22.7 per cent of these patients who have been restored to work there will be added enough to bring the total to 40 per cent restored to work. Although we would like to see a higher percentage, yet considering that the outlook was well nigh 100 per cent hopeless without operation, we are encouraged by the results which we have obtained. I am greatly pleased that we have, in Rhode Island, a man with some training and experience in thoracoplasty for pulmonary tuberculosis.

Table 1.

THORACOPLASTY, 22 CASES

	Cases		Percent
Sex.			
Men	7	=	31.8
Women	15	=	68.2
The Extensively Involved Lung			
Right	10	=	45.4
Left	12	=	54.6
The Contra-Lateral Lung			
Apparently Clear	9	=	41.0
Slightly Involved	13	=	59.0
Cavities			
Present	22	=	100.0

Table 2

RESULTS OF THORACOPLASTY

	7 years to date		
	Tb. in Sputum		
Present before operation	19	=	86.3
Present after operation	12	=	54.5
Spread lesion to contra-lat.	5	=	22.7
Pneumonia Contra-lat. Lung. Death after 4 days	1	=	4.5
Empyema and Chr. Nephritis (Death after 15 mo.)	1	=	4.5
Lesion Contra-lat. lung (Death after 30 mo.)	1	=	4.5
Failing	2	=	9.1
Chronic and Unimproved	5	=	22.7
Improved	3	=	13.7
Much improved, Recovery probable	4	=	18.2
Resumed work, Symptom free	5	=	22.7
	22		99.9

TECHNIC OF OXYGEN THERAPY*

By Albert H. Miller, M.D.

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To supply oxygen to the tissues is the principal object of the complicated mechanism of circulation and respiration. The air which we breathe contains about 20% oxygen. The nitrogen is inert and serves only to dilute the oxygen. From the alveolar air, oxygen is taken into the circulation and is carried by the arterial blood stream to every tissue cell of the body. In the tissues, oxygen unites with carbon to form carbon dioxide, which is taken up by the venous blood and passes off in the expiration as a waste product. The expired air contains about 5.5% carbon dioxide and is saturated with moisture from the upper air passages.

*Read before the Providence Medical Association November 7, 1932.

The body may survive deprivation of food and water for long periods but interference with the supply of oxygen immediately produces alarming symptoms. The condition of anoxemia, produced by lack of oxygen, is characterized by cyanosis, a bluish discoloration of the skin noted especially on the lips and finger tips and due to an excess of reduced hemoglobin in the capillary circulation; dyspnea and other disturbances of breathing; an increased pulse rate due to the effort of the heart to supply more oxygen by circulating the blood more rapidly; an increase in the pulse pressure resulting from raising the systolic pressure and lowering the diastolic pressure; interference with the cardiac conduction system; dilatation of the heart; restlessness; delirium; and finally, unconsciousness.

Our knowledge of oxygen commenced with experiments made with a large burning glass by Joseph Priestley[6], an English clergyman of Birmingham. On the first of August, 1774, he focused the sun's rays on some red oxide of mercury and noticed that bubbles of gas formed. He collected the gas and called it dephlogisticated air. In 1798, Thomas Beddoes[2] opened a Pneumatic Institution for treatment of disease by inhalation and used dephlogisticated air, now known as oxygen, in the treatment of such conditions as chlorosis, dyspnea, asthma and opium poisoning. From that time oxygen inhalation was used occasionally, but generally as a last resort and by ineffectual methods. The favorite procedure was to pass oxygen from a low pressure cylinder through a wash bottle and tube to a glass mouth piece or to a funnel held at some distance from the patient's face or at least pointed in the general direction of his nose and mouth. The method was both wasteful and inefficient.

In 1917, under the stress of conditions due to the war, Haldane[4] in England devised a mask which was successfully used in oxygen treatment of pulmonary edema following gas poisoning. At the same time, Meltzer[5] in New York was treating pneumonia with great success by the oral insufflation of oxygen. This work was further developed by Roth[8] at Battle Creek, by Barach[1] at the Presbyterian Hospital in New York, and by Boothby[3] at the Mayo Clinic. Oxygen inhalation is now used with marked success in pneumonia, in uncompensated heart disease, in asthma, emphysema, and in anoxemia from other causes. It is also used for stimulation of metabolism as in extensive burns and ulcerations.

The oxygen which we obtain compressed in cylinders is prepared in great quantities from liquid air. Atmospheric air is compressed by an air pump and is then allowed to escape into a large chamber where the sudden expansion causes intense cold which reduces the air to a liquid. When allowed to evaporate, the nitrogen passes off first leaving the oxygen to be collected and pumped into cylinders so that it can be transported and used. The large oxygen cylinders contain 220 cubic feet, about 1,650 gallons.

Oxygen inhalation can be carried out efficiently
by insufflation through a nasal tube,
by the face or nasal inhaler,
with an open cone,
with an oxygen tent, or
a portable oxygen room.

The stationary oxygen rooms are expensive to construct and are subject to a constant hazard from fire. The oxygen rich atmosphere does not burn nor explode but will fan to alarming proportions any flame which may gain entrance to the room.

Nasal Catheter

Nasal tubes for oxygen insufflation are rubber catheters, No. 8 or 10 gage. Several holes are made in the terminal half inch of the catheters so that a constant stream of the gas can not impinge on one spot in the pharynx. The flow of oxygen is controlled by a flow meter consisting of a reducing valve with a millimeter opening in the outlet. The oxygen bubbles through water in a wash bottle which serves as an additional indicator of the flow, moistens the oxygen and acts as a safety valve. The flow meter is calibrated in liters of flow per minute. About five liters per minute provides a 50% oxygen atmosphere and is usually sufficient to overcome anoxemia and cyanosis. The nasal tube is well lubri-

cated before introduction. The tip of the tube should lie in the oro-pharynx, distant from the nares by 4½ to 5½ inches. The tube is fixed to the cheek or forehead with a strip of adhesive plaster. Sufficient slack in the tubing is provided to allow free movement of the patient's head. Once in twelve hours, the nasal tube is removed and a clean tube introduced into the alternate nostril. If the nasal tube is correctly placed it provides an efficient device for oxygen therapy. With a flow of 7 liters the oxygen percentage may be as high as 70%[9].

The face inhaler for oxygen inhalation is provided with an inspiratory as well as an expiratory valve and does not allow rebreathing. Oxygen passes from a high pressure cylinder through a reducing valve, to a rubber supply bag which is automatically kept filled. On each inspiration, a mixture of oxygen with atmospheric air is drawn into the lungs. The percentage of oxygen is regulated by a control valve which determines the amount of air to be admitted. It may be set to deliver 50, 60, 70, 80, 90, or 100 per cent. of oxygen. The face inhaler requires constant attention to keep it properly fitted to the face and may be objectionable to the patient.

Portable Oxygen Tent

It is useful for brief periods in emergencies and for administering high percentages of oxygen, which it does efficiently and without waste. The nasal inhaler is more comfortable for the patient and requires less attention. If the patient's mouth can be kept closed, it is equally as efficient as the face inhaler.

Administration of oxygen with an open cone such as is used for etherization has proved to be a valuable and reasonably efficient method. The efficiency depends upon the fact that oxygen is slightly heavier than air, its specific gravity being 1.1056. An open cone seven inches high is closely fitted to the patient's face and held approximately in a vertical position. Oxygen is fed into the top of the cone and from its high specific gravity tends to constantly sink to the bottom. A flow of oxygen of 5 liters per minute has been sufficient to clear up marked cyanosis.

The oxygen tent is the most popular apparatus for continued oxygen administration. It is reasonably efficient, is comfortable for the patient and is readily transported. The tent itself is made of closely woven fabric rubberized on both sides. Windows of non-inflammable aceto-cellulose are conveniently placed in the front and sides of the tent. The capacity of the tent should be at least eight cubic feet. A square tent must measure at least twenty-four inches in each dimension. The tent is suspended over the head of the patient's bed on a metallic frame. The sides of the tent are extended below into a long skirt which is tucked under the mattress at the head of the bed and at the sides, and under the blankets or spread in front. The efficiency in operation of the tent depends largely upon the care with which the skirt is arranged.

In an efficient oxygen tent, the oxygen percentage, the percentage of carbon dioxide, the temperature and the relative humidity must be under exact control and the arrangement should be so far automatic as to maintain these factors constant over periods of hours or days without frequent attention.

Oxygen is supplied from high pressure cylinders through a reducing valve. The reducing valve has two gages indicating the tank pressure and the reduced pressure. If the flow of oxygen is limited by a capillary opening, the reducing valve is converted into a flow meter and the rate of flow is determined by control of the reduced pressure, otherwise the reduced pressure is set at about 20 pounds and the rate of flow is regulated at some other point in the system. To increase the oxygen in a standard tent to 50%, at least 150 liters of oxygen must be added. This increase may be effected slowly or rapidly depending upon the exigency of the case. At 10 liters per minute, the increase is effected in fifteen minutes. After the 50% oxygen atmosphere has been reached, a flow of about 8 liters per minute is required for maintenance with ordinary nursing care. With special attention to prevention of leakage, a 50% oxygen atmosphere may be maintained on a flow of 6 liters per minute. A test for the percentage of oxygen should be made frequently. 50%

is the usual figure. 30% is usually ineffectual and over 70% may be injurious. Without regard to theoretical percentages, a good rule provides for the use of sufficient oxygen to overcome the symptoms for which the treatment is required and no more.

The tent confines the animal heat constantly given off by the patient, especially if his heat production is increased by fever, and the contained atmosphere soon becomes too hot for comfort. To cool the tent, a chamber filled with ice is placed in closed circuit with the tent. The atmosphere is circulated through the tent and the ice chamber by one of three methods:

1. The thermo-syphon. The air in the ice chamber constantly becomes colder and sinks to the bottom of the chamber. The circuit is so arranged that this cold air constantly displaces the hot air from the tent and passes it back to the top of the ice chamber to be cooled in turn.

2. A pump or injector which maintains circulation of the air by utilizing the expansive force of the oxygen as it emerges from the high pressure cylinder is more efficient than the thermo-syphon system.

3. An electric motor blower is the most efficient means for controlling the tent temperature. With such a blower, controlled by a sensitive thermostat, the temperature in the tent can readily be maintained at any point between 60 and 72 degrees F., which are the limits within which the majority of patients find most comfort. The temperature depends upon the speed with which the blower circulates the air through the ice chamber and is independent of the rate at which oxygen is supplied.

The patient is constantly expiring carbon dioxide to the extent of 5.5% of his expired air. In the early tent models, carbon dioxide was absorbed in a chamber containing soda-lime (calcium sodium hydrate) which was included in the closed system through which the tent atmosphere circulated. The carbon dioxide absorption introduced a distinct element of danger. Without carbon dioxide absorption, an accidental interruption of the oxygen supply would produce the marked respiratory stimulation and discomfort of hypercapnia. With carbon dioxide absorption, a failure in the supply of oxygen would be unnoticed by the patient, who might quietly pass into a state of unconsciousness and might die unless the oxygen failure was noticed by the attendant in time. The modern tents do not employ carbon dioxide absorption but dispose of excess carbon dioxide in the following ways:

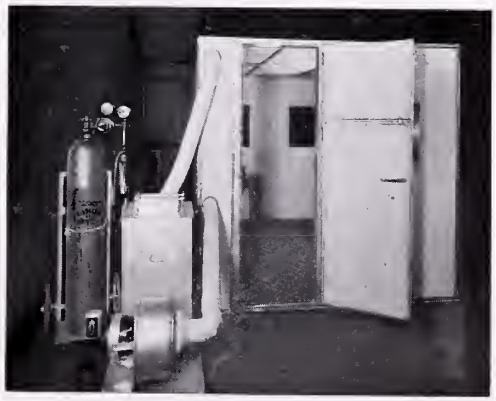
1. While the tent fabric is impervious to oxygen, carbon dioxide constantly diffuses through it.

2. Carbon dioxide is absorbed by the ice and cold water in the ice chamber.

3. The greater proportion of the carbon dioxide is lost by leakage, especially around the edges of the skirt of the tent. With extraordinary care to prevent leakage and an oxygen flow of 6 liters, the carbon dioxide in the tent may approach 4%, but this increase is not accompanied by any subjective symptoms. With an oxygen flow of 8 to 10 liters, the carbon dioxide will not rise above 1.5%[7].

The humidity inside the tent is constantly increased by the moisture of the patient's expiration. To insure comfort, the relative humidity of the tent atmosphere should be kept at less than 50%. This is accomplished by precipitation of the moisture as the air is circulated through the ice chamber. The relative humidity may readily be tested with the wet and dry bulb hygrometer. With the efficient ventilation of the motor blower outfit, no difficulty is encountered in disposing of the excess water vapor. With the thermo-syphon system, it may be impossible to keep the humidity down to the point of greatest comfort.

The portable oxygen room is a tent large enough to contain the patient's bed and other furniture. It may be enlarged so as to provide for several patients. The room is constructed of rubberized fabric mounted on an angle iron frame. The room is



Portable Oxygen Room

lighted by aceto-cellulose windows. The oxygen supply, ventilation by a motor blower, and the ice chamber are similar to those used with the standard tent but are on a more extensive scale. For an

oxygen chamber 8 by 8 by 9, two large cylinders of oxygen are used for the initial charge and a flow of 10 to 12 liters is required to maintain a 50% oxygen atmosphere. A powerful ventilating fan is provided and the ice chamber has a capacity of 300 pounds. Excess carbon dioxide is disposed of by leakage, by absorption in the ice chamber and by diffusion through the extensive surface of rubberized fabric.

Permanent Oxygen Chamber

The stationary oxygen room is an air tight steel chamber. At one end of this chamber are brine coils connected with a refrigerating plant and pans of soda lime for carbon dioxide absorption. At the other end is a steam radiator. The convection current which ventilates the room passes up through the steam radiator and downward over the brine coils and through the soda lime. The stationary room is very economical of oxygen, as there is but slight leakage, and after the initial charge the entire oxygen requirement is limited to the amount needed for the metabolism of the patient and attendants who occupy the room. Excess moisture condenses on the brine coils. In the stationary room the oxygen percentage, the temperature, humidity, and the carbon dioxide percentage are under very exact control. The fire risk is considerable. Matches are not allowed to be brought into the room. No electric wiring is placed inside the chamber. Electric lights are arranged outside the windows. Signs are prominently displayed reading, "No flames, No sparks, Danger." There is less fire hazard from the portable tents and rooms, but enough for serious consideration. The smoldering flame of a match or a cigarette flashes up in a 50% oxygen atmosphere and may start a serious conflagration.

Minute traces of oil in the tubes transmitting oxygen may explode with violence. Explosions have occurred in industrial plants from such trivial lapses as wiping the outlet of an oxygen cylinder with a workman's greasy fingers. Oxygen gages are conspicuously labeled "Danger. Do not oil."

Successful oxygen therapy depends upon close attention to many details. The apparatus must be kept in perfect working order. Spare parts should be kept in readiness for an emergency. The oxygen percentage must be carefully maintained. If the oxygen supply fails from any cause, the treatment must be suspended and the patient immediately removed from the tent or oxygen room. Excess carbon dioxide must be efficiently disposed of. The most favorable temperature and relative humidity must be determined and then carefully maintained at the optimum point. Water must be drained from the ice chamber at regular intervals lest accumulation of water interfere with the required ventilation. The possibility of explosion or of fire risk must be constantly kept in mind and guarded against. A patient who has been under continuous oxygen treatment must not have the treatment suddenly discontinued. The oxygen percentage should be gradually reduced and the patient carefully watched for unfavorable reactions.

This careful attention is well worth while. In oxygen treatment, excepting the opiates and anesthetics, and the action of some of the serums and organic extracts, we have the most valuable therapeutic measure at our disposal.

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The R. I. Medico-Legal Society—Last Thursday—January, April, June and October, Dr. Fenwick G. Taggart, President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

CONSTRUCTIVE CRITICISM—THE MATERNITY WARD

Lay criticism of medical activities is as a general rule of little import as it is usually based upon anything but fact. When, however, the criticism comes from within the profession itself, it should indeed be heeded. The recently published statements of Drs. De Lee and Siedentopp regarding the prevalence of maternal infection and the relatively high maternal death rate from puerperal sepsis in the maternity wards of general hospitals, are backed by an array of facts collected on both sides of the Atlantic by Professor Siedentopp, which makes it imperative that the profession "sit up and take notice." It is evident from the material presented that the average woman is far safer as far as sepsis is concerned when delivered in a hovel by an ignorant midwife than when she enters the fully equipped maternity ward and is attended by the highly trained physicians of the staff. This seems almost beyond belief and yet there are the facts! Can it be that the obstetric specialist and the associated nursing staff are negligent in their duty and fail to carry out in detail the prescribed technical

procedures or have the midwives in spite of their relative ignorance become the possessors of some charm which they pass on one to another in all lands where they are employed? Neither explanation is tenable. The fact must be, as De Lee points out, that infections are brought into the maternity wards from outside and especially from other parts of the general hospital and passed, principally by indirect contact, from patient to patient. This is probably most often, as Chapin has shown in the case of contagious disease, by means of the hands of doctors, nurses and attendants. Even the most careful technique, such as is so well exemplified in the wards of the Charles V. Chapin Hospital, occasionally breaks down and cross infection occurs. How much more is this likely to take place in the general hospital where such time-consuming and laborious methods of medical asepsis are not, and perhaps cannot be enforced. With Dr. De Lee's idea that air-borne infection is an important factor, one who is familiar with the work of Chapin and Richardson on the transmission of contagion is not impressed.

Nevertheless, however transmitted, the fact of the prevalence of puerperal infection is only too evident and something must be done. In order to preserve the obvious advantages of hospitalization of parturient women, their complete segregation in separate hospitals must be accomplished, better isolation of the individuals must be insisted upon and more "medical asepsis" must be enforced by rigid technique which is required of student nurses and physician alike. When the more favorable results of the work of midwives as compared to physicians in the home is considered, one is forced to the conclusion that the fact that the practitioner may be dealing daily with virulent infections among his clientele while the midwife is not, may indicate the doctor a much greater menace to his parturient patient—a handicap that he can overcome in no other way than by recognizing its existence and by practising to the limit the appropriate technical precautions.

THE CERTIFICATION OF SPECIALISTS

In connection with the recent publication of the reports of the Committee on the Costs of Medical Care a great deal of attention has been focused upon the general practitioner and his importance in any scheme of medical care. This attention is of great value and should serve to bring about a proper recognition of the great service rendered to the community by this type of practitioner. Of equal importance, however, is a realization that we must have qualified specialists to supplement the work of the general medical man. At the present time there are no legal requirements for or restrictions upon the practice of special branches of the healing art; any legally qualified practitioner may hold himself out as a specialist regardless of his fitness or qualifications. This is an unfortunate situation and one which calls for early action. The report mentioned above[1] states — "The practice of specialties should be limited to those persons whose training or experience gives them a skill in their field distinctly above that which ought to be possessed by all well-trained general practitioners." The problem is also recognized in the final report of the Commission on Medical Education[2] as follows—"The medical profession and the public have a joint responsibility in guaranteeing that those who claim to be specialists are in fact experts in their fields. A particular identification for those who profess to be specialists should be created, such recognition to be granted only on evidence of the successful completion of a training which in the opinion of competent physicians is adequate to prepare the individual for practice in the limited field."

At the present there are certain praiseworthy voluntary movements directed toward a solution of this problem. The formation of the American College of Surgeons and of the American College of Physicians, and of the various special examining boards have as their object the raising of the standards within their special fields. They do not, however, prevent the untrained man from claiming special ability. Many proposals for accomplishing this have been made. It has been suggested that the National Board of Medical Examiners extend its examinations to include the examination and certification of specialists. Another suggestion is that State Boards assume this function. The most interesting suggestion, however, is that State Societies certify as to the qualifications of those claiming to be specialists. The Medical Society of New Jersey[3] has devised a carefully worked out plan for accomplishing this purpose, and this plan has many attractive features.

What must be realized is that the subject is receiving an increasing amount of attention from medical men and thoughtful laymen, and some action will undoubtedly result. We shall be wise to

study this matter with care and to lead in its solution, rather than having some well-meaning but ill-considered plan forced upon us by legislative enactment.

(1. "Medical Care for the American People"—The Final Report of the Committee on the Costs of Medical Care—University of Chicago Press, 1932.

2. "Final Report of the Commission on Medical Education"—New York, 1932.

3. "Certification of Specialists by the State Society"—Waters, E. G., A. M. A. Bulletin, XXVIII, 1, January '33, 6-11.)

Publishers' lists of new books show an increasing number, of late, devoted to the history of medicine. Most medical colleges now offer courses in such history.

These facts show a definitely renewed interest in the subject on the part of doctors, for publishers were loath to accept for publication such books a short time ago.

Many of our greatest medical men had more than a passing interest in medical history. Sir Clifford Allbutt, Sir William Osler, Cushing, and a host of other great figures in the profession are examples of those whose zeal for the subject resulted in valuable contributions. The interest, therefore, by the profession is a good omen. No one, it would seem, could know well any disease without knowing its history. No one greatly interested in a subject could help being curious about its past or could help being benefited by such knowledge.

Further, the more one reads of ancient medicine the less he is likely to talk about the advances of "Modern Medicine." One sometimes feels as if the ancient Greeks knew all the essential and important facts about most of medicine as we know it today. This is particularly true when we realize only a small portion of their writings were preserved for us.

The desire for historical knowledge by the profession is, indeed, commendable. The cultural aspects are important. The power to evaluate facts more correctly, however, will always remain the greatest asset of medical history and a general acquisition of such knowledge raise the standard of the profession.

THE HEMOLYTIC STREPTOCOCCUS*

By D. L. Richardson, M.D., and H. Everett Smiley, M.D.

The hemolytic streptococcus is one of the worst enemies of man. It causes such diseases as scarlet fever, puerperal septicemia, erysipelas, septic sore throat, pneumonia, meningitis, peritonitis, endocarditis, tonsillitis and pharyngitis, and septic infection of accidental or operative wounds which are so often followed by septicemia.

In 1929 according to the United States Mortality statistics of the Registration Area 2,468 persons died of scarlet fever, 5,822 of puerperal septicemia, 2,887 from erysipelas and 1,208 from purulent infection and septicemia. The figures by no means include all the deaths caused by the streptococcus hemolyticus for a great many were included in other diagnoses such as mastoiditis, peritonitis, accidental wounds in which this organism was the chief factor although not mentioned.

With the exception of scarlet fever, of which there are in the neighborhood of 300,000 reported cases each year, there is no way to accurately estimate the number of hemolytic streptococcus infections which occur each year and which are not fatal. It is unnecessary to argue that it is very common and probably much more common than generally believed. There is convincing evidence that a considerable percentage of comparatively mild infections of the nose and throat are caused by this organism. This will be brought out in the chart which will be shown later.

Moreover, the streptococcus is a real menace in hospitals and many times in child caring institutions. A great many outbreaks of this infection has occurred in the Lying-In hospitals of this country with disastrous results. So serious has been this menace that in Chicago the Lying-In hospital has been built in two parts, one for clean cases and one for infected cases. Puerperal sepsis, infected breasts, scarlet fever, erysipelas and other infections have caused these hospitals great concern and discredit.

This infection, however, is not confined to this type of hospital for the general hospital is frequently visited by both mild and fatal streptococcus infections among patients, nurses and physicians. Every so often a series of post-operative infections is experienced by any sizable hospital.

*Read before the Providence Medical Society, December 5, 1932.

All these infections should, from an epidemiological standpoint, be grouped together as hemolytic streptococcus diseases. By doing this it may be possible to put into operation measures both in community and the hospital, measures which may be of sufficient value to decrease the incidence of this type of infection very materially.

These infections do not just happen for there are very definite epidemiological reasons for their existence. In spite of the fact that there are many strains of the streptococcus and no ready laboratory methods of distinguishing them it is advisable to start with the premise that every streptococcus infection is potentially a menace to the patient and those who come in contact with him. It is perhaps not generally realized how frequently mild throat and respiratory infections are caused by this organism and that a certain percentage of the population are constantly carrying these organisms in the nose and throat even when not ill. The sources of infection of this disease, if it may be so termed, are exactly the same as in the case of other infectious diseases, namely, the recognized cases, the unrecognized cases and the carriers.

Some contribution in the study of this problem has been made at the Chapin Hospital beginning in February, 1928. Primarily it was begun to learn whether the routine laboratory examination of throat cultures for the streptococcus hemolyticus would shed any light on assisting in the diagnosis and release of scarlet fever patients. For many years a routine nose and throat culture was taken on all patients admitted to the hospital to detect diphtheria and diphtheria carriers. For this purpose the standard Loeffler's culture medium had been used.

In a paper by one of us and Dr. Edwin Knights of the laboratory staff read before this Society and published in the State Journal in 1929 a summary of the work carried on for one year to determine not only what patients had on admission diphtheria organisms in the nose and throat but also hemolytic streptococci. During previous experiments it was learned that blood agar plates served not only to detect with accuracy the presence of the streptococcus but also the diphtheria bacillus. In fact this medium was found to be quite or even more satisfactory for the growth of the diphtheria bacillus.

This practice has been continued until the present time and this paper includes a further report on the incidence of the hemolytic streptococcus among hospital patients extending from Feb. 1, 1929, to Nov. 30, 1930. It should be borne in mind that both reports were made from data on culturing consecutive patients as they were admitted and not a selected group. The following table shows the incidence of this organism in certain selected and grouped diseases.

TABLE I

February 1, 1929, to November 13, 1930

	Total No. of cases	Avge. No. cultures per case	Total No. and % of cases	Total No. and % of cases	Total No. and % of cases positive	Total No. and % of cases negative
Scarlet fever	369	6—7	265—71.8	55—14.9	320—86.7	49—13.3
Tonsillitis	110	2—3	54—49.0	13—11.8	67—60.8	43—39.2
Diphtheria	236	4—5	54—22.9	39—16.5	93—39.4	143—60.6
Pharyngitis } Laryngitis {	141	2—3	26—18.4	17 12.0	43 30.5	98—69.6
Erysipelas	76	2—3	12—15.7	14—18.4	26—34.2	50—65.9
Measles	140	2—3	21—15.0	18—12.9	39—27.8	101—72.1
Whooping cough	146	2—3	12— 8.2	17—11.6	29—19.7	117—80.2
Influenza	17	1—2	0— 0	3—17.6	3—17.6	14—82.4
Other Diseases	1669	2—3	146— 8.7	142 8.5	288 17.3	1381—82.7

A corresponding table of cultures reported in 1929 is as follows:

TABLE II

February 1, 1928, to January 31, 1929

Scarlet fever	335	240—71.6	39—11.6	279—83.3	56—16.7
Tonsillitis	62	30—48.4	2— 3.2	32—51.6	30—48.4
Diphtheria	216	34 15.7	28 12.9	62—28.7	154—71.3
Pharyngitis } Laryngitis {	75	19—25.3	7— 9.3	26—34.7	49—65.3
Erysipelas	35	10—28.6	1— 2.3	11—31.4	24—68.6
Measles	287	20— 6.9	16— 5.6	36—12.5	251—87.4
Whooping cough	47	4— 8.5	1— 2.1	5—10.6	42—89.4
Influenza	72	5— 6.9	3— 4.2	8—11.1	64 88.9
Other Diseases	278	12 4.3	17— 6.1	29—10.4	249—89.6

Comparing these two tables it will be noted that in the first report, table 2, the total positive cultures in scarlet fever cases was 83% and in this second report, table 1, about 87%, a rather consistent experience. In tonsillitis it was 48% in the first study and in the last it was 60%, a decided increase. In pharyngitis and laryngitis it was 34% and 40%. In erysipelas it was 31% and 35%. It will be noted that routine cultures in measles, whooping cough, diphtheria, influenza and other diseases the incidence of hemolytic streptococcus carriers was much greater in the most recent study, 20% compared with about 11% in the first study in 1929. The explanation for this is not quite clear. It is possible, however, that our technique was better and certainly the average number of cultures taken on each case are larger now than during the first year in which this study was begun. On the other hand it may be that the incidence of carriers in the community is greater. Certainly the number of cases of scarlet fever in the city has been unusually high during the last three years.

It is interesting to note that at the present time the practicing physicians in the city are more and more insistent that the Health Department report on the cultures which they take, not only on the presence of diphtheria organisms but also on the presence or absence of hemolytic streptococci.

The practical results of this study are as yet not fully evident. However, certain procedures seem to be logical and some of them have been found to be of much service.

The diagnosis of scarlet fever alone on the cultures is not justified but the presence of the streptococcus is strong presumptive evidence and confirmatory. As yet it has not been found to be safe to discharge cases from the hospital or from home isolation on cultures alone although it has been used to some extent. A complete study of discharged cases of scarlet fever for four years will soon be made to help clear up this point. In institutions it has been found a great help when scarlet fever has appeared not only to isolate all cases but also all streptococcus carriers. It is quit clear also that all cases of hemolytic streptococcus, mild or severe, and all carriers should be isolated. There are strong reasons to believe that were this done there would be fewer wound infections, fewer throat and scarlet fever infections among nurses, and fewer outbreaks of sore throats among patients, particularly children, and fewer streptococcus infections in lying-in hospitals.

It is quite probable that if nose and throat infections were more generally cultured for the hemolytic streptococcus that some over-looked cases of scarlet fever would be recognized, that in any case if the physician would, if he knew that these organisms were present in the throat cultures, be more conservative in his diagnosis and hurrying convalescence, and advise the family to keep away from the patient and employ aseptic technique to protect other members of the household. Every physician is on his guard in every case of streptococcus infection, providing he is aware of it.

As to producing artificial immunity and the treatment of these infections by serum much remains to be done. This problem has intrigued research workers for years. There are so many strains of the organism, the toxin is so powerful and immunological results so variable that the answer to the problem has not been found. However, progress has been made and it is not impossible that a toxin will be found which not only will not cause severe reactions but also will produce real immunity in the case of scarlet fever so that what is being done to stamp out diphtheria may be feasible in the case of scarlet fever. Not only this but similar means of effective immunization or treatment of other streptococcus infections may be found.

This paper has been written to point out certain epidemiological features of this group of streptococcus diseases and some of the things which might be done to recognize and prevent at least some of them.

SOCIETIES

The Rhode Island Medical Society Council Meeting

February 16, 1933.

The regular quarterly meeting of the Council was held Thursday, Feb. 16, 1933, at 4:30 P. M., at the Medical Library, with the President, Dr. N. D. Harvey, presiding.

The minutes of the last special meeting of the Council were read and adopted.

In the absence of Dr. A. T. Jones, the Secretary brought to the attention of the Council the matter of the Walter Reed Fund which was collected by the committee headed by Dr. C. D. Sawyer as part of a nation-wide appeal for funds to purchase the birthplace of Dr. Walter Reed. The Chairman of this committee has the funds which were collected by the committee, but is unable to get any response from the Central Committee at Washington which initiated the move, relative to the disposition of the moneys collected in Rhode Island. The matter was continued until the next meeting on account of the absence of Dr. Jones.

Dr. J. A. Chase reported with reference to the motion of the Council at the last regular meeting that the New England Medical Council, to which this Society sends delegates to four meetings held annually for the purpose of discussing problems of interest to the New England State Medical associations, be conferred with in regard to a different allocation of expenses, that he had communicated with the Secretary calling his attention to the feeling that the one-sixth share of the total expense of the Council borne by the Rhode Island Medical Society appeared excessive to the Council of the Rhode Island Medical Society, and expressed the hope that a more equitable distribution of the costs might be devised by the New England Medical Council, and suggested that the expenses be based upon the membership of the several New England State Medical societies rather than upon the geographical basis of states. No reply has as yet been received from the New England Medical Council.

Dr. George Waterman, Chairman of the Committee on Education, State and National, presented the following report, and it was voted that the Council recommend to the House of Delegates the adoption of this report:

"To the Council of the R. I. Medical Society:

"The Committee on Education has the following report to make on an educational measure which has been brought to its attention for use in the High Schools in Rhode Island.

"This measure consists in the publishing of a pamphlet entitled, 'Opportunities for Training and Work in Nursing in Greater Providence,' which it is proposed by the authors, sponsored by the Providence School Committee, to place in each of the High Schools in Rhode Island. This is part of a general plan of the Committee to place before high

school students outlines of the various vocations.

"This pamphlet has been very carefully prepared. It has gone quite thoroughly into the whole question of nursing as an occupation and has given quite impartially the advantages and disadvantages of nursing in general and it gives in quite detail the requirements of each of the Schools of Nursing in Providence.

"It is the understanding of the Committee that the school authorities wish to publish this pamphlet in co-partnership with the Rhode Island Medical Society; that the expense of publication should be divided between the two parties and that the expense to the Rhode Island Medical Society shall not exceed $50.00.

"The Committee has considered the matter at a meeting held at the office of Dr. Leech and feel that this is a worthy object and one that the Society might well lend its name in advancing. The Committe, therefore, recommends to the Council and the House of Delegates that they give favorable consideration to this proposal and appropriate a sum not exceeding $50.00 to carry out its part of the program.

Respectfully submitted,
George Waterman, *Chairman*
Robert Baldridge, Charles Farrell, N. Darrell Harvey, James W. Leech } *Members Ex-officio Members*"

Adjourned.

Respectfully submitted,
J. W. Leech, *Secretary*

House of Delegates

February 16, 1933.

The regular meeting of the House of Delegates was held Thursday, February 16, 1933, at 5 P. M., at the Medical Library, with the President, Dr. N. Darrell Harvey, presiding.

The report of the Council was presented by the Secretary, and on motion, duly seconded, it was voted that the House of Delegates approve the action of the Council in recommending the adoption of the report of the Committee on Education, State and National, as presented by Dr. George Waterman, Chairman, for the publication by the Rhode Island Medical Society, jointly with the Providence School Committee of a booklet entitled, "Opportunities for Training and Work in Nursing in Greater Providence," which it is proposed to place in each of the high schools in Rhode Island.

The President, Dr. N. Darrell Harvey, called attention of the House of Delegates to the coming dinner in honor of Dr. Edward H. Cary, President of the American Medical Association, on February 20th, and urged all the members to lend their support to insure the success of the meeting. He suggested that each delegate consider himself a committee of one to urge other members of the profession to attend this meeting in honor of the President of the American Medical Association.

Adjourned.

Respectfully submitted,
J. W. Leech, *Secretary*

R. I. Ophthalmological and Otological Society

A regular meeting was held at Peters House, R. I. Hospital, Thursday, Feb. 23rd, at 8:30 P. M., following the R. I. Hospital Staff meeting.

Subject: 1—Presentation Eye Service Cases, Dr. Messinger. 2—Presentation E. N. T. Service Cases, Dr. Porter. 3—Paper of the evening: "Recent Advances in Radiology of the Mastoids," Dr. I. Gerber.

N. A. Bolotow, M.D.,
Secretary.

ANNOUNCEMENT

FISKE FUND PRIZE ESSAY
For 1933

The Trustees of the Fiske Fund announced at the annual meeting of the Rhode Island Medical Society, held in June 1932, that they proposed the following subject for the year 1933.

"The Female Sex Hormone"

For the best essay on the subject worthy of a premium they offer the sum of two hundred dollars ($200.00). Every competitor of the premium is expected to conform to the following regulations, namely:

To forward to the secretary on or before the first day of May 1933, free of all expense, a copy of his dissertation with a motto thereon, and also accompanying it a sealed envelope having the same motto inscribed on the outside and his name and address within.

Previously to receiving the premium awarded, the author of the successful dissertation must transfer to the Trustees all his right, title and interest in and to the same, for the use, benefit and behoof of the Fiske Fund.

Letters accompanying the unsuccessful dissertations will be destroyed unopened, by the Trustees, and the dissertations may be procured by their respective authors if application be made therefor within three months.

The essays must be typewritten and should not exceed 10,000 words. If an essay is illustrated, such illustrations will be published at the expense of the author.

N. Darrell Harvey, M.D., Providence, R. I.
Charles S. Christie, M.D., West Warwick, R. I.
Albert H. Miller, M.D., Providence, R. I.
Trustees.

Wilfred Pickles, M.D.,
184 Waterman St., Providence, R. I.
Secretary to the Trustees.

Thank You Doctor

The baby is doing splendidly and Tom and I are so pleased.

When you first told me that Junior would have to have bottle feedings I thought I was due for a lot of trouble and work because I remembered what a time my sister had when her baby was on the bottle. She sent for a formula that was advertised to be recommended by many authorities, but something was wrong. She used to spend hours in her kitchen mixing this, that and the other thing. And in spite of all her trouble, her baby fretted and cried and didn't gain properly.

This S.M.A. you have prescribed for my baby is a new one to me. In fact, I have never seen it advertised. But, believe me, it works like a charm and it is *so* simple to prepare—no fuss or bother at all.

Junior reaches to take the bottle right out of my hands and drinks it all up. And he's the *best* child. Always happy when he's awake, and sleeps the whole night through.

And talk about a picture of health! I believe he would take first prize in any baby contest.

I'm going to bring him down to your office Wednesday as you suggested. That S.M.A. folder you gave me says even a breast fed baby should be under the supervision of a physician and I think myself that it's better to *keep* the baby well than to wait until trouble starts.

We certainly want to thank you for bringing our baby along so well, Doctor. It increases our confidence in you as our family physician. Tom has already "said it with dollars", but I wanted to thank you personally, too.

And I'm going to persuade Mrs. Brown,—that's my neighbor with the baby that's not gaining—to come along on Wednesday so you can prescribe the proper diet for *him* too.

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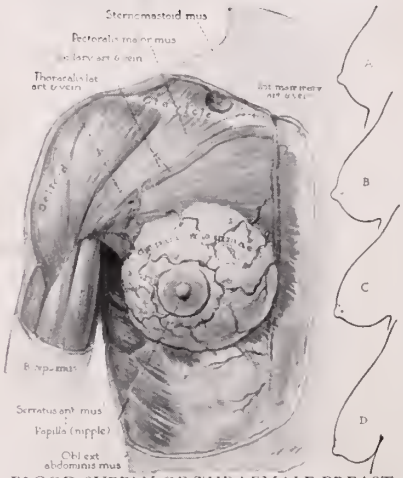

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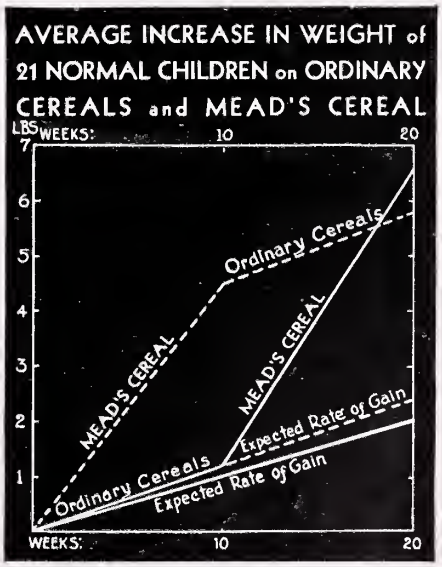
[1]Summerfeldt, P.: *Am. J. Dis. Child.* **43**:285-290; Feb. 1932.



The striking feature was that the rate of gain of the two groups of children increased or dropped in ratio to the amount of Mead's Cereal in their diet.[1]

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ORIGINAL ARTICLES

AVERTIN ANESTHESIA—A METHOD OF FRACTIONAL ADMINISTRATION*

By MEYER SAKLAD, M.D.,
2 EUCLID AVE., PROVIDENCE, R. I.

It is but a few years since Avertin (tribromethylalcohol) was added to the list of known anesthetic agents. In these few years it has constantly gained favor and has earned for itself the right to be classified as a useful anesthetic agent. It has even been asserted[13] that anesthesia produced by this agent approaches the ideal more closely than that of any other.

When first employed, an incomplete understanding of its physiological response, dosage, preparation and indications led to fatal complications in several instances. Recent studies of its action on bodily structures, an increasing knowledge of its indications and contraindications and a better understanding of the types of patients susceptible and resistant to its action are gradually making it a safer anesthetic agent and widening its sphere of usefulness.

It is the purpose of this paper:

First, to review some of the reactions of this agent on bodily structures.

Second, to consider the advantages and disadvantages of both the agent and its present mode of administration.

Third, to offer a method of fractional administration of this agent not unmindful of the precautions to be maintained in its safe administration.

Fourth, to review a series of cases in which this procedure was employed for the production of surgical anesthesia.

Tribromethylalcohol, CBr_3CH_2OH, a crystalline powder, is commercially available as "Avertin Fluid," a solution of tribromethylalcohol in amylene hydrate, containing one gram of the crystals per cubic centimeter of the solution. This solution is unstable. If heated much above 40 degrees centigrade decomposition readily takes place. Hydrobromic acid is split off and dibromacetaldehyde is produced.

$$CBr_3 . CH_2OH - Hbr = CBr_2:CHOH = CHBr_3 . CHO$$

Dibromacetaldehyde, even in small concentrations, is an exceedingly irritating substance. Its presence in the anesthetic agent will lead to damage of the mucous membrane lining the lower bowel, since this agent is administered by rectum.

The presence or absence of dibromacetaldehyde in the anesthetic solution can readily be determined by testing against a 1-1000 solution of congo red. The change to a blue color in the test solution establishes the presence of this irritating substance and renders the solution dangerous to use. Since it is necessary that the solution be heated previous to administration it is important that this precaution be made an integral part of the technique of administration.

The solution, if allowed to cool, may result in crystalline precipitation. Precaution should therefor also be exercised to prevent this occurrence.

Action of Avertin on Bodily Structures

Blood: Avertin has but little action on the blood chemistry. In this it compares very favorably with the inhalation anesthetics. It causes no change in the non-protein nitrogen, urea nitrogen and creatinine content of the blood[21]. In these it is in marked contrast to the action of ether on the blood constituents. Its action on the carbon dioxide combining power has been reported as from no change[21, 4, 3] to but slight alteration if there is any interference with respiration.[5, 7] The action of avertin on the blood sugar is slight.[3] There occurs a small rise in the early stages of the anesthesia. The normal level is reached, however, before the anesthesia is over.[4] In its action on the blood sugar it may also be contrasted with ether. Ether causes a marked and sustained rise.

Liver: Avertin, because its structural formula is very much like that of chloroform, has led many to believe that liver damage may be expected to follow its administration. Studies[6] show that avertin has by no means the same damaging effect upon the liver as chloroform. There exists no dye retention

*Read before the Rhode Island Medical Society, June 2, 1932.

after its administration[5] and the harm done to the normal liver is negligible. In this it compares favorably with sodium amytal.[7] In an animal previously poisoned with chloroform it may cause added liver damage.[6]

Kidneys: Avertin after detoxication is eliminated through the kidneys. Its action on kidney structure is therefore important. Avertin causes marked kidney suppression in the dog but much less in man.[7] In the human, avertin depresses kidney function temporarily, and to a very small extent. This kidney depression recovers in from four to six hours.[5]

Heart: The toxicity of avertin on heart musculature is low, about one-sixteenth that of chloroform.[16] Electrocardiographic studies show that with the ordinary anesthetic dose there is no appreciable change in the conduction mechanism.[9] Avertin, in concentrations much higher than are found in normal avertin anesthesia in man, produces no deleterious effects upon the heart. The pulse rate is not much altered. Marked alteration in the pulse rate is usually the result of operative trauma or loss of blood.

Blood Pressure: A fall in blood pressure is characteristic of the anesthesia. The blood pressure-pulse rate ratio is usually undisturbed. The amount of fall in blood pressure is variously reported as 10 m.m.[2] 10-20 m.m.[11] with an occasional higher figure noted. Goldschmidt and Hunt[3] report the fall in systolic pressure in man as 19 m.m. and in women as 28 m.m. Hg. The fall in blood pressure may to a large degree be avoided by a slow administration.

Respiration: A depressed respiration is also characteristic of the drug. The degree of respiratory depression varies with the depth of narcosis. Respiration is usually shallow, although Eichholtz found that although the respiratory rate was markedly decreased during the anesthesia, the minute volume remained essentially the same. The respiratory mechanism responds readily to carbon-dioxide if the patient is not overdosed.

Dosage

In using the commonly employed single dose method, the most difficult and most important decision to be made concerns the size of the dose to be administered. There is no universally accepted scale of dosage. The dosage is based on body weight. Calculation of dosage according to body weight is only an approximate guide, since patients differ greatly in their reaction to the agent. Some patients are susceptible, others resistant, to its action. Debilitated, obese, pregnant and dehydrated patients present a problem in as much as the weight as an index of dosage is obviously undependable. Children and young adults require larger doses than the average. Patients with toxic thyroid disease can tolerate larger doses than the usual run of patients; those with subnormal metabolic rates tolerate less. It has been my experience that the same patient on successive operations for the same condition may require widely varied amounts of avertin to give the same depth of anesthesia.

Recommended doses vary as to the degree of narcosis desired by the reporters. For basal narcosis, doses of 80 to 100 milligrams per kilo are recommended.[10, 24] Goldschmidt and Hunt report that, employing this dose for basal narcosis, full surgical anesthesia was obtained in 24% of the cases. Doses of 130 milligrams per kilo are employed at the University Clinic at Hamburg-Eppendorf. Guttman[11] in employing the 130 milligram dose finds that 80% of the patients require no supplementary anesthesia. Balaam[1] employs doses of 130-150 milligrams per kilogram of body weight.

It is because of the universal dissatisfaction for a single dose method of any toxic drug, particularly an anesthetic agent, and because of the impossibility to determine beforehand a dose of avertin that would accurately produce a predetermined depth of anesthesia that I feel that the future of avertin as an anesthetic agent depends on the ability to make it more controllable than it now is. To this end I feel that a method of fractional administration is of value.

Preparation and Administration

Preparation of the Patient: The patient is weighed on the day previous to the scheduled operation. In the early morning of the operation he receives cleansing enemas. One hour before operation a small dose of morphia, usually gr. 1/8, is administered. I feel that large doses of morphia, barbiturates or scopolamine asociated with avertin are of some danger. Atropine is not given with the morphia.

Preparation of the Solution: The patient's weight is noted, and a volume of distilled water is taken that will make a 2½% solution containing 130 milligrams per kilogram of body weight. This is measured out in a previously graduated three

neck Woulff bottle, with centigrade thermometer through its center neck. The temperature of the solution is brought to 38 degrees centigrade by placing it in a basin or under a stream of warm water. The correct amount of avertin is then pipetted in. The two lateral necks of the bottle are covered by the thumbs of either hand and the bottle shaken until the entire avertin fluid is taken up in solution. Sufficient 1-1000 congo red is added to the anesthetic solution to give it a decided reddish color. The presence of this reddish color proves that the solution has remained stable and is safe to use. The presence of a bluish color demands that the entire solution be discarded and a new solution be prepared. I feel that the addition of congo red to the entire solution and not to a small amount, as a side test tube determination, is an important feature, since in long continued operations it may be necessary to reinforce the anesthesia by a second or third administration of the agent.

In this way the surgeon, anesthetist and operating room personnel think of avertin as a pink solution and any change in its color would be sufficient cause for comment. The Woulff bottle is then placed in an electrically controlled water bath, with accurately adjusted thermostat control set for 38 degrees centigrade. Thus we have protected our solution against disintegration and precipitation.

In one neck of the Woulff bottle is placed a rubber stopper containing a right angle piece of glass tubing which extends through the lower end of the stopper for about one-half inch. To the other end of the glass tubing is firmly attached a 12-inch piece of rubber tubing with a hand bulb. In the neck on the opposite side is placed a rubber stopper with a right angle piece of glass tubing which extends down to almost the bottom of the bottle. The delivery tubing is attached to the other end of this glass tubing.

Administration is begun 15 to 20 minutes before the scheduled operation. The patient is brought to the anesthetizing or operating room. The administration is given with the patient in dorsal position. A well lubricated catheter of moderate size is passed up into the patient's rectum for a distance of about four inches. The proximal end is carried up over the patient's groin. The air in the delivery system is expelled by means of compressing the hand bulb. The delivery tube is then hooked up with the catheter by means of a glass connecting tube.

An amount of solution equivalent to 80 milligrams per kilogram of body weight is slowly passed into the patient's rectum by compressing the hand bulb. Blood pressure, pulse, and respiratory rate determinations are taken and recorded at frequent intervals. A period of 10 minutes is allowed to elapse, at which time the effect of the solution is noted. An amount of solution equivalent to 10 milligrams per kilogram is then injected and repeated every five minutes until the desired depth is obtained. The problem as to the exact point at which to stop the injection of the drug is a difficult one for the anesthetist. The stages of anesthesia are not definite and merge one into the other with no distinguishing features. The depth of anesthesia must be anticipated since absorption from the rectum is slow compared with pulmonary absorption. Injection of the drug must stop at a point before the level desired for the operation is attained. The action of the agent on the blood pressure, respiration and reflexes all act as an index to the depth of anesthesia. Loss of the lid reflex is probably the most important single guide.

The induction period is more comfortable and peaceful than that of any other anesthetic agent we have. There is no period of excitement. The patient undergoes no period of laryngospasm, sense of suffocation or distress. One can hope for no better induction from any other agent that we have now or may ever have.

The anesthetist must pay close attention to the respiration of the patient. A free airway must be maintained at all times. At the first sign of diminution in the rate or depth of respiration a stream of a mixture of 10% carbon dioxide in oxygen should be delivered to the patient's oral cavity by means of a mouth hook or better still by an intranasal catheter, extending well down into the pharynx. The administration of these gases is continued throughout the period the patient is in the operating room and is a routine practice with me.

Muscular relaxation is considerably better than that obtained by the use of either nitrous oxide or ethylene, but not as complete as that which occurs under a well conducted ether anesthesia. The lid reflex is soon abolished. The pharyngeal reflex is abolished early, but the laryngeal reflex disappears only with excessive dosage.[24] Waters[24] feels that this is an important and valuable feature. One can readily see that the persistence of a laryngeal reflex would probably be of value, particularly in surgery

involving the naso-pharynx. The skin reflex is late to go. It is well to remember this. It has been my experience that patients seemingly deep enough for operation, as for mastoid, might slightly rouse, wince, or strain at the skin incision and closure. Between these periods the patient would be in a profound slumber. Rather than push the patient deeper it is probably better judgment to administer enough gas to keep them quiet during these unwelcome periods. In certain conditions a simple skin infiltration of a weak solution of novocaine may suffice and be better judgment.

Cyanosis is unusual and if it does occur means an obstructed airway. The fall in blood pressure that occurs has already been stated. This fall occurs early in the anesthesia and soon levels off and seldom offers cause for alarm.

The period of anesthesia lasts from about one to one and one-half hours. If it is necessary to prolong the anesthesia an added amount of the anesthetic solution may be injected at the first sign of lightened anesthesia. Here too is it necessary to anticipate. The added solution must not be injected too rapidly or in too great an amount, for it takes but little more to deepen the level of anesthesia. One must give the solution sufficient time to become absorbed before allowing one's self to continue the administration of added agent.

During anesthesia there occurs but little loss of body fluid by perspiration, particularly as compared with ether anesthesia.

The recovery period is usually without incident. The period of amnesia is a lengthy one and may extend late into the day. Consciousness is attained gradually and almost invariably without excitement, although there was one patient in the series to be reported who had to be restrained.

By effects such as nausea and vomiting are almost entirely absent and occur only if blood has been swallowed. Post-operative nursing care is very important. The patient should not be allowed to be alone since these patients are prone to develop a respiratory obstruction from a dropped jaw or relaxed tongue. Nurses should be instructed in means to prevent or treat such occurrences. The use of a nasal catheter in these conditions is valuable.

Various agents have been recommended to shorten the period of anesthesia. Ephedrine at this time seems to be the most promising in this regard. Experiments on dogs and observations in man[19, 22, 6] show that rectal anesthesia with avertin may be interrupted or considerably shortened by the administration of ephedrine. This property of ephedrine is of value clinically in overcoming too profound avertin anesthesia. It is inadvisable to employ adrenalin as one would ephedrine for detoxication purposes, since it has been shown that adrenalin in avertin anesthesia produces cardiac irregularity and experimentally, employing a heart-lung preparation, occasionally causes ventricular fibrillation.[19] Bourne and Raginsky recommend ephedrine in dosage of 1mgm./kilo intravenously. Spiedel[20] feels that the period of anesthesia may be shortened by the administration of caffeine sodium benzoate. It is a common observation that patients with toxic thyroid disease have a high tolerance for avertin. This has led to the use of thyroxin as a detoxicating agent.[17]

Indications: As a basal anesthetic agent it may be used with any other type of anesthesia, with perhaps spinal anesthesia the only exception. There is no literature to my knowledge that deals with the use of avertin with spinal anesthesia. I feel that because of the action of avertin on blood pressure it would not be wise to superimpose another agent to cause an added fall in blood pressure.

As an anesthetic agent in itself and not to be supplemented, it is indicated in operations in which extreme depth of anesthesia is not desired and where profound relaxation is not needed. Thus it is limited to operations about the head and neck, thorax, extremities, and extra-peritoneal operations. In particular it is indicated in electro-surgery of and about the upper respiratory passages, naso-pharyngeal surgery, bronchoscopy, and esophagoscopy. Dandy[8] feels that it is indicated in brain surgery because it eliminates three conditions associated with other anesthetic agents: swelling of the brain, post-operative vomiting and pneumonia.

Contra-indications: Since the agent is detoxicated in the liver and excreted through the kidneys, severe disease of these organs constitute a contra-indication. Avertin can probably be used quite safely in patients with moderate liver damage, though it is best to use smaller dosage.[6] It is also contra-indicated in shock, debility, severe acidosis and advanced cachexia. Patients with deficient thyroid secretion eliminate the drug slowly, thus it is contra-indicated in patients with low basal metabolism. It may sometimes be wise to determine the basal metabolism in questionable patients.

Dangers: Anesthesia obtained with tribromethanol in animals indicates that the drug has approximately the same margin of safety as other drugs commonly used in the production of general anesthesia. Avertin is said to be less toxic than ether.[12] It has no cumulative action and can be repeated with safety. Huntington[14] administered to a boy of eleven suffering with tetanus 100 mgm./kilo. and then 80 mgm./kilo twice a day for ten days and then once a day for a few days with no bad effects.

The anesthetic dose is approximately from two-thirds to three-fourths of the fatal dose.[24] The degree of anesthetic risk is variously given as 1:7500[18] and 3:10,1000.[11, 15] It is the author's opinion that most of the fatalities recorded in the literature were the result of either improper preparation of the solution with resulting damage to the mucous membrane lining the rectum and colon, or the flooding of a susceptible patient with a toxic dose by using the predetermined single dose method.

Report of Cases

The series here reported totals eighty-three administrations. This series includes only those in which full surgical anesthesia was attempted by fractional administration of this agent. The patients to whom avertin was administrated as a basal narcotic are excluded. The average age of the patients was 37, the youngest 11 and the oldest 73. The agent was employed for all types of operations about the head and on several occasions was employed in thoracic surgery.

A list of the operations follows:

Bilateral ethmoidectomy	10
Bronchoscopy	7
Cauterization lingual tonsil	4
Enucleation of eye	1
Electro-Excis. neoplasm scalp	1
Electro-surgery of mouth	4
Esophagoscopy	3
Excision carcinoma of neck	1
External Killian	1
Extirpation of lacrimal cyst	3
Ligation int. carotid	1
Mastoidectomy	6
Radical antrum with extraction of teeth	4
Radical antrum	10
Repair cleft palate	1
Rib resection	6
Skin graft to scalp	1
Tonsillectomy	8
Thyroidectomy	11

In seven patients the anesthesia was incomplete, necessitating supplementary anesthesia at some time. Nitrous oxide was employed six times and nitrous oxide ether once. There were two complete failures.

Blood Pressure Reaction: Nine percent of the patients had no blood pressure reaction. A fall occurred in sixty-one percent of the administrations. The greatest fall was sixty millimeters of mercury and occurred in a cardiac patient whose pre-operative pressure was 210/110. This patient made an uneventful recovery. The average fall in pressure was twenty-five millimeters of mercury.

Twenty-nine percent of the patients exhibited a rise in blood pressure. The rise in pressure occurred almost entirely in two groups of patients—sinus surgery of the head in which adrenalin was employed, and thyroidectomies. The greatest rise was seventy millimeters of mercury and occurred in a toxic thyroid patient. This patient made an uneventful convalescence. The average rise was thirty-six millimeters of mercury.

Complications: Twenty-five of the patients were suffering from either varying degrees of bronchitis, lung abscess or pulmonary tuberculosis. In spite of this there occurred not a single post-operative pulmonary complication. Patients with kidney disease were excluded from this type of anesthesia. No kidney complications presented themselves. There occurred no injury to rectal mucosa. Post-operative delirium occurred in one patient. This patient required sedatives and restraint for four hours.

Six patients were anesthetized twice, three three times and one patient four times by this agent. No damage from repeated anesthesia was apparent.

Death occurred in one patient. This patient was a severe diabetic suffering from a huge abscess involving the chest wall and pleural cavity. Death occurred a few weeks after operation from septicemia.

Dosage: The amount of avertin necessary to give full surgical anesthesia in the above series of patients is shown in the following chart:

mgm./kilo	75	80	100	110	120	125	130
No. of pts.	1	1	10	15	25	20	11

Conclusions

Avertin is a valuable addition to our present day anesthetic agents. Its action on blood chemistry may be favorably compared with any other. Its action on the parenchymatous structures is negligible with the exception of its action on the liver and kidneys. Here, too, its action is not serious. Its greatest disadvantages lie first, in its unstable character, and second, in its limited ability of controllability. Careful handling of the agent will keep it stable. The method of fractional administration as advanced in

this paper, it is hoped, will lead to more accurate and careful dosage. Careful attention must be paid to the maintenance of a free and unobstructed airway. The post-anesthetic care is important.

Avertin at this time should not be used as a routine anesthetic agent. Its administration should be limited to its indications. It is the anesthetic agent of choice in a limited field but in this field it is unexcelled.

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CONTRACTION RING, CAUSING DYSTOCIA*

By Dr. Frank S. Hale

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Those of us who perform the cervical type of Caesarean section, have had an opportunity to study the lower uterine segment as it actually appears at full term pregnancy even with considerable advance of labor. When the part of the uterus just behind the bladder is exposed by separating the bladder well down and laterally, it gives access to a zone extending from the cervix upward for about 6 to 9 cm. This is known as the *Lower Uterine Segment.* The peritoneum over it or that portion not covered by the bladder is quite loosely attached. Underneath the peritoneum there is a distinct facia layer, and beneath that the muscle wall is quite thin. The upper boundary of this segment is recognized by the peritoneum abruptly becoming adherent. There are large transverse sinuses in the uterine wall, and the muscle is markedly thickened. This tissue boundary is commonly called *Bandl's Ring.* The segment from this ring to the internal os is termed the *Lower Uterine Segment.*

The origin before pregnancy of the lower uterine segment has been widely discussed. Older authorities claim that it was made up entirely from the cervix. Later theories indicate that it is developed from the lower part of the uterine body, and Aschoff in 1906 showed that tissue existed between the cervix and the uterine body, which he termed "isthmus." He claimed that this tissue developed during pregnancy into the lower uterine segment. From its cell composition, this seems to be quite conclusively proven. It is possible that some few fibers from the upper part of the cervix may go also into its formation. Histologically, there is quite a little difference in cell structure. The lining epithelium is more cuboidal than ordinary endometrium, and the muscle fibers have not as much variation in direction as in the uterine body proper. The musclature is not over half of its thickness, and the peritoneum is definitely less adherent.

The innervation of the lower uterine segment acts contrary to that of the main body. Whatever contractions occur are very weak—in fact, it actually has to dilate, or at least remain passive. Where these two segments meet, commonly called "Bandl's

*Read before the Rhode Island Medical Society, September 1, 1932.

Ring," the innervation control is very difficult to continue harmoniously throughout labor.

The presence of this condition has been recognized clinically and somewhat anatomically since nearly 1700. It is first mentioned by Braune, and at about the same time, Bandl spoke of its clinical significance. Bandl's description was mostly restricted to the physiological action. According to our present observation, he had a pretty conclusive idea of the work of this structure. Since that time, there have been varying facts and theories brought forward in regard to the action of this ring. The summary of our latest knowledge is as follows:

The partition of the pregnant uterus into an *active upper contracting segment* and *a passive lower relaxing segment* shows nature's adaptability of this organ to its function of expelling the foetus. The passive lower segment thins out and advances upward over the presenting part of the baby, as the cervix progressively opens. The ring or junction of these two zones is located in the beginning of labor at or just about the level of the pelvic inlet. In normal labor, this ring does not hinder the upward advance of the lower part of the uterus over the progressively downward advance of the baby. In too great upward retraction, the ring acts protectively to ward off, as long as possible, rupture of the uterus through the lower uterine segment. After the birth of the foetus, the ring helps to hold back the placenta long enough for normal separation to take place, and for the contracting uterus to close off the large blood sinuses. Thus, it is a protection against post-partum hemorrhage.

The pathological action of this ring has been given a great many names. As a general division, when retraction is spoken of, the action is considered more or less physiological. Contraction rings usually indicate hindrance, and therefore, pathological action. Practically all these entities can be brought under two general headings: 1. Where the ring is part of a general uterine spasm and retards labor only as part of this general tonic contraction. 2. Where the ring alone is in tonic spasm, the remainder of the uterus reacting normally. Here the ring is the primary cause of the dystocia, and definitely obstructs advance of the presenting part.

When the ring is part of general uterine retraction—that is, the entire uterus contracting down and remaining so—it stops the progress of labor. This condition usually occurs when the labor is prolonged, especially if the membranes have ruptured early, and also by excessive irritation or too frequent examinations. Premature attempts to hasten delivery by bagging or forceps may also produce the same effect. However, occasionally this condition arises when none of these things has been done. Improper innervation probably best explains the condition in such cases.

I will go on to describe the physical signs. The uterus is fairly hard but the foetal outline can be made out definitely. As this condition often occurs in the first stage with the cervix incompletely dilated, the cervix often becomes oedematous. No furrow occurs on the anterior abdominal wall; the ring does not rise and is located at or just below the pelvic inlet. The uterus is tender, continuous pain is felt low down and in front. The patient realizes that no progress is being made. If, in the first stage of a normal or especially dry labor, continuous pain low in front with a firm, tender uterus in which the foetus can be palpated and no rising furrow is noted across the anterior abdominal wall, general retraction of the uterus is quite obviously the cause of the delay.

Unhappily, in the old days, ergot and later pituitrin were often administered, mistaking the condition for inertia. The action of these drugs increased the tonicity of the uterus, often causing asphyxia of the baby and even rupturing the uterus. These cases call for relaxation. As soon as this condition is noted, I have usually given morphine 1/6 to 1/4 gr. DeLee advises that atrophine sulphate be also given if there is no idiosyncracy to the drug. Allow the patient to rest, omit examinations with the exception of watching the foetal heart, and labor quite often in a few hours will be resumed normally. This rest helps the baby, for as the uterus relaxes, placental circulation improves.

If the uterus does not relax, or if when labor is resumed it contracts tonically, intervention will be required. The choice of an anesthetic here is quite important. The general experience points to ether as the safest and most satisfactory. Spinal would not entirely control the sympathetic innervation, and with avertin, uterine contractions continue—therefore, there is insufficient relaxation. Chloroform, although rapid in action, needs to be carried too close to the danger line for proper safety. A competent anesthetist in these cases means as much as a competent operator. First, be sure that the uterus is absolutely relaxed before attempting delivery. If the internal os is not fully dilated, complete this dilatation manually. Now the labor is practically in the second stage. With vertex pre-

senting, the choice of forceps or version depends considerably upon the operator. My experience has been that usually if the head is above high mid-pelvis, version is more satisfactory. If at or below mid-pelvis, forceps, supplemented by pressure on the fundus, seem to work out best. Breech in this condition will show impaction—that is, the feet will be straight up, and if the breech is first manipulated upward gently, the extended legs will be brought down more easily. Pressure on the fundus will keep the head flexed and prevent the arms from extending over the head.

It is also important that the head be free in the cervix, and that deep ether be continued so that the ring will not contract around the neck. This deep ether is one of the most important factors in successful delivery of this type case.

Harper has pointed out that excessive traction, plus resistance of an incompletely relaxed lower uterine segment, extends the arms and is responsible for much of the foetal mortality in breech extractions.

The baby, after this type of delivery with deep anesthetic, will undoubtedly require considerable resuscitation. As the anesthesia is discontinued, the uterus usually reacts well.

Under the foregoing heading may be included general tetanus of the uterus, spasm uteri and myoclonia uteri.

The second group includes those cases in which the ring is the primary cause of obstruction, and this type is usually called "strictura uteri" or "hour-glass uterus."

Faulty innervation is basically the causative factor. The circular fibers of Bandl's ring contract into a thick band, grasping whatever part of the foetus intervenes, or they contract with the entire foetus above. The general outline of the uterus is ovoid. It is much firmer than in the preceding group; the foetal parts are difficult to palpate; the lower part of the uterus especially is tense and painful while the upper portion may continue very violent contractions. The special signs are: 1. Ovoid fundus irregularly contracting; 2. Hard, tender lower uterine segment. Vaginal examination produces extreme pain so unbearable that in some cases anesthesia may be necessary. Here the cervix quite often will be well dilated. To actually demonstrate the ring, the hand must be carried up to its location. There the ring will be felt as a sharp-edged crescent or complete ring. The membranes may or may not be ruptured, and often the presenting part, if caught just at or above the ring, will actually recede. Externally, no furrow may be seen —in fact, it seldom does show.

This condition is not always recognized. With a fully dilated uterus and the presenting part not progressing, forceps are often applied, and if a deep anesthetic is not given, traction accomplishes nothing except possibly injure the mother's tissues and fracture the baby's head.

If the membranes are intact and the foetal heart good, morphia will usually relax these cases, and the labor may terminate spontaneously—perhaps with the presence of contraction ring never having been realized. As with the *Retraction Group,* deep anesthesia and delivery is usually the most satisfactory treatment.

In the past few years, some of these cases have been delivered by abdominal section. The fact that an enclosed foetal head or breech has been delivered through an ordinary uterine incision, indicates that the anesthetic relaxed the ring, and in all probability, vaginal delivery could just as well have been accomplished. Sufficiently deep anesthesia will efface any contraction ring. Here again, competent administration is very important. Ether seems to be the safest, and may need to be quite prolonged, but the hazard of this is much less than the danger of a ruptured uterus.

Where Bandl's ring is shown in the protective role of capped uterus, attempting to delay rupture, the obstruction of progress is not due to the uterus but to a malformed, disproportionate pelvis or a primary abnormal position of the foetus. These are the cases that show the rising furrow across the abdominal wall. Often the entire foetus has been delivered into the lower uterine segment with the upper contracting portion doing its best to expel it. Here the ring is attempting to prevent uterine rupture, and if intervention is not soon brought about, rupture is imminent. I believe that often Caesarean section is indicated in this type of case if a disproportionate pelvis is the cause. Here laparotrachelotomy can be employed, and even if there has been manipulation, prognosis is favorable.

Finally, sometimes during the third stage of labor the ring may so rapidly and forcibly contract before the placenta is expelled as to incarcerate the placenta. Here again its action is physiological but is too pronounced. If Credé is not successful, anesthesia may be needed.

To compile statistics in regard to the incident of occurrence of the various types of Bandl's ring is almost impossible. Many cases have occurred without its presence having been recognized, and again, others simply have not been charted. Very difficult deliveries have been attributed to the excessive size of the baby or some degree of disproportion of the pelvis when the actual arrest of the foetus was due to contraction ring.

In conclusion, I would say that whether recognized or not, dystocia is quite frequently caused by the abnormal action of Bandl's ring. In such cases, two invariable factors are always present, namely: obstruction of labor and actual demonstration of a ring. With our present experience, ether has shown itself to be the best and safest anesthetic to relax and efface, and Caesarean section is best limited to very selective cases—essentially those with disproportionate measurements. Early recognition and proper treatment undoubtedly will greatly lessen the high foetal mortality of these cases.

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EDITORIALS

NEW MEDICAL PRACTICE ACT

Two bills relating to the practice of the Healing Art have been introduced into the general assembly. The aims and purposes of both bills are the same. Since several amendments to the original osteopathic and chiropractic acts have been passed from time to time giving to them all, or nearly all the privileges of a physician, it is time to require that all those who practice the Healing Art be required to show evidence by training and examination that they are able to recognize the kinds of diseases to which human beings are subject. It is utterly unsafe and the state should not allow people to consult a licensed practitioner who is not able to diagnose diseases, whatever method of treatment he may practice.

Changes in the acts governing physicians, osteopaths and chiropractors are imperative for the protection of the public, and it is to the interest of, and the moral obligation of, physicians to support these changes.

Those interested in these two bills are working on a substitute which will contain all that is best in them and include a revision of the present laws re-

lating to the practice of the Healing Arts. Probably the Health Commission will be given the authority to make or delegate to experts all the examinations, both the preliminary and licensing examinations, the other boards to be abolished. This would be a great step forward and will ensure both uniformity and efficiency. As soon as the new act is perfected and ready for the Judiciary Committee, to whom these bills have been referred, it will be published or copies sent to as many physicians as possible. It will then be the privilege and duty of each physician to use his influence to ensure the passage of the new act which means so much to the public health and to all physicians.

"COSTS OF MEDICAL CARE"

We have a profound admiration for the work of the Committee on the Cost of Medical Care; their work has been extensive, intensive, painstaking and analytical as set forth in their report recently issued. In the investigation of various fields, many of the interpretations have been masterly. The recommendations offered, however, appear to be at a decided variance with the country's medical needs. If their recommendations could have been directed and adapted to social and industrial fields to the end that people could earn money enough to pay their doctors, we feel that it would have been much more to the point.

And now more recently comes a "final report" which seems to be one of defense, at least as bearing upon the majority report, in which are quoted indorsements copied from various authorities, among which is the *N. E. Journal of Medicine* which, say the committee, represents the opinion of Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island as being "fair and constructive." We much regret this unfortunate and unexpected privilege of being caught in the dragnet of blanket indorsement inasmuch as the Rhode Island Medical Society and the individual members thereof have not endorsed the recommendations as set forth in the majority report, and we therefore regard the assertion (to be polite) as being frankly open to criticism. We cannot applaud this assumed liberty. In some localities and under some circumstances the recommendation of the majority report or some form of organized effort might be indicated but Rhode Island sees in it no economy, can visualize no workable plan or advantage and sees no hope of maintaining that personal human touch between physician and patient, generally speaking, and especially to medical needs of suburban and outlying districts, when the sick are treated by a few physicians, selected by whom or by what process we wot not, that are grouped around a hospital, which physicians are remunerated by some visionary process that is indefinite and veiled in mystery, by "taxation insurance or both." The proposition savors something of witchcraft but in this revolutionary astrolobe, one discerns a nebulous but socialistic aim.

We also note in this final report that an "unprejudiced" committee of three or four Doctors of Philosophy, a Certified Public Accountant and a lady whose authoritative status we know not of and whose reputation for administrative acumen has been so vagrant and elusive that it has not reached us, have passed upon the matter as to how the sick can best be taken care of and how the medical and allied professions can be used for this purpose.

If we cared to descend to flippancy we might suggest (just to give this committee weight in numbers) that the addition of a plumber, a Baptist and a vegetarian might also be induced to acclaim the virtue of its "unprejudiced" opinions. We have no desire to be accused of blatancy, however, and can only say that in its conclusions the method of procedure, the deductions arrived at, and the course advised by the major committee, are unfortunate.

A trained soldier entering a strange city is only interested in whether the training field is suitable to maneuver a fleet of tanks or how large a body of foot may be marshaled and be put through their paces upon the public square; the cultural attainments, the architectural and physical beauties other than this finds no place in his mental curriculum.

And by the same token we find a parallel analogue in men, even men of superior mental capacity urging through the press and over the radio the adoption of radical changes in medical care with as solemn an assurance and fervor as would be possible in pronouncing a deep seated religious truth. But it must be remembered that the physicians of the country, who have spent hundreds of thousands of dollars and have devoted certainly ten years of the best of their lives, often years of privations, even hardships, to fit themselves for a PROFESSION,

a profession devoted to alleviating pain and deferring death, whose beneficent helpfulness transcends any or all other agencies on earth, can hardly be expected to pose as makeshift tools in the hands of mistaken theorists.

AN OPPORTUNITY FOR PATRIOTIC SERVICE

With the possible exception of the occasional clergyman, perhaps no individual comes so close to the family and personal life of his client than the average physician. Even with the gradual disappearance of the old time family physician and the advent of the modern specialist, the doctor of medicine is still relied upon for his advice in matters that reach out beyond the realm of medical care. Our patients turn to us for encouragement in personal, community, and national problems and often make important personal decisions based upon our advice.

In these times of great national crises, with their widespread effect of unrest, undefined and unreasoning fear, and mental and financial depression, it is most important to be optimistic and encouraging.

All educated persons with level-headed estimates of present conditions realize that much needless suffering may be avoided if one will minimize the difficulties and allay public hysteria.

Now that the new administration has taken up the affairs of government, with new courage, a new point of view and perhaps a new resourcefulness, it is most necessary that it should have the whole support of the people disregarding party affiliations. The greater patriot always supports the administration in office.

We as physicians may well look seriously at our influence with our patients, and as we visit the homes seeing distress at first hand, it behooves us to suggest optimism, courage, and loyalty in our government. Let us create an ever growing wave of serenity and good feeling which will go far towards abating the mental distress which follows in the wake of the late depression.

American ingenuity has always been creative and not destructive, and American ingenuity will recreate a national prosperity in direct proportion to the courage and loyal support of its people.

TRANSURETHRAL PROSTATIC SURGERY

During the past few years a constantly increasing volume of material on the relief of prostatic obstruction by transurethral procedures has been appearing in medical literature. Since 1928 more than a hundred major articles on this subject were published, nearly half of these during the past year. The bulk of the published work to date has been that of American authors. The *piéce de resistance* of the last meeting of the American Urological Association was a symposium on this topic. It was marked by many enthusiastic and glowing reports, and not a little heated argument. There were even charges and counter-charges of plagiarism and copyright infringement among the inventors and proponents of the various devices and contraptions brought forward for the purpose of removing, through an endoscope, obstructions at the vesical neck, whether by punch, gouge, reamer, cutter, cautery, diathermy, massive fulguration, or a combination of these. By all of these alarums and excursions the matter has attained many aspects of a medical fad, with its frenzied enthusiasts crying abroad the merits of their respective instruments and flaunting their case reports before the staid and stolid advocates of radical prostatectomy like picadors in the arena. And close behind them (or did they come first?) are the manufacturers of the expensive equipment necessary for this operation, exploiting commercially both the instruments and the good names of their inventors in terms that make the wildest thoughts of the veriest zealot seem conservative by comparison.

Why has this procedure leapt thus suddenly into the limelight? Why its spectacular increase in popularity? The idea is not a new one. A century ago one Guthrie of London used a knife sheathed in a catheter for cutting what he termed "bar at the neck of the bladder." Various others developed similar incisors or excisors, and in 1874 Bottini made an electro-cautery instrument, which Freudenberg in 1897 improved by combining it with the irrigating cystoscope. The first of the modern instruments, the prostatic punch of Hugh Young, was described nearly twenty-five years ago, and the high frequency current principle was introduced only a few years later (Beer, 1910; Stevens, 1913; Luys, 1913). The instruments at present rec-

ommended for this operation are legion. Prominent among them are those of Caulk, Foley, McCarthy, T. M. Davis, Braasch (Tyvand-Bumpus), Collings, Ryall, and others. All of these combine essentially the cutting and electrocoagulation of tissue under vision, with removal of the excised portions through the endoscope sheath. For each of them their respective inventors claim peculiar advantages.

The whole question at the present time may reasonably be said to be in a state of flux. There is disagreement even among the enthusiasts as to just what classes of prostatic cases are amenable to this form of treatment: whether it be applicable to the early obstructions only or to the later ones as well; whether malignant or only benign conditions should be attacked with it, and so on *ad infinitum*. There is marked difference of opinion over technical details of treatment in any given case, and how a given technique may be used to the best advantage. One of the sages at the last urological conclave made the would-be conciliatory remark that the choice of instruments was largely a personal matter depending on the operator's individual idiosyncrasies as in the choice of golf clubs, "where one man would use a mashie for a given shot another might use a niblick." And, we might add, still others would use a putter or a tennis racquet. Happily all authorities are generally agreed that the procedure is a real operation, carrying a definite mortality; not to be undertaken by the tyro nor inadvisedly even by the experienced; that patients need careful preoperative preparation and post-operative management exactly as for radical prostatectomy; and that the method is not a panacea.

From the foregoing it is evident that an exact evaluation of transurethral surgery of the prostate is at present impossible. What its eventual place will be in the armamentarium of the urologist time alone will tell. That out of the existing confusion and disagreement there will eventually emerge something good and useful seems a reasonable assumption. In the meantime, whether our personal prejudices prompt us to condemn the procedure or accept the tenets of the enthusiasts at their face value, let our watchword and our shibboleth be *festina lente*.

OBITUARY

Dr. Cornelius J. Mahoney

It is our sad duty to record the death of Doctor Cornelius J. Mahoney (more familiarly known to his friends as Doctor Neil), at his home, 83 Governor Street, January 3, 1933.

Doctor Mahoney was born in East Providence, January 30, 1875, and later moved to Providence with his family. He was educated in the public schools of Providence, La Salle Academy, St. Michael's College in Toronto, and graduated from Harvard Medical School in 1898. After serving an interneship in St. Joseph's Hospital, he practiced medicine in Providence (with the exception of a year spent in practice in Colorado) continuously up to a short time before his death. He enjoyed a very extensive private practice, he was greatly devoted to his work, never too tired to answer calls of distress, he was always very considerate in his dealings with his fellow practitioners and was very much beloved by his patients.

In 1902, Doctor Mahoney married Miss Mary Clogher of Boston, who, with one daughter, Miss Celia Mahoney, a teacher of French in the Nathan Bishop Junior High School, survive him.

Doctor Mahoney was a member of the Providence Medical Association, Rhode Island Medical Society and American Medical Association. He was also affiliated with the B. P. O. Elks, the Catholic Club and the Metacomet Golf Club.

Henry J. Hoye, M.D.
J. C. O'Connell, M.D.

Dr. Gordon Rice Barden

Dr. George Rice Barden was born in Scituate, R. I., September 7, 1867, the son of James A. and Dorothea Barber Barden. As a boy he worked on a farm and attended the district school during the winter. After his elementary training in the rural school his desire for learning prompted him to enter the Providence High School, and he often walked from Scituate to Providence and home again on week-ends. After one year in the high

school he entered East Greenwich Academy, where he paid his tuition and board by working. When he completed his work there he taught school for two years in order to obtain money with which to pursue the study of medicine. He entered Bellevue Medical College in New York City and was graduated therefrom March 23, 1896.

He commenced practice in Rockland, R. I., and soon built up a profitable practice throughout the towns of Scituate and Foster. After two years in Rockland he saw an opportunity to increase his practice by moving to Apponaug, R. I. While in Apponaug he was prominent in town politics and served on the town council and as town physician. In order that people might be able to secure necessary medical supplies he opened and conducted a pharmacy in Apponaug.

In 1902 he sold his business in Apponaug in order to fulfill his desire for a hospital training. He entered Columbus Hospital in New York City and served three years as an interne. During this period he completed a course in the New York Post Graduate Hospital. He returned to Providence April 1, 1905, and opened offices on Elmwood Avenue. He enjoyed an increasingly satisfactory practice, and his admirable qualities won him ready recognition. He became surgeon of St. Joseph's Hospital in Providence and also served as surgeon to the Rhode Island State Institutions. On October 27, 1916, he was elected a Fellow of the American College of Surgeons. For several years before his death he held the position of consulting surgeon to St. Joseph's Hospital.

Dr. Barden was a man of sound judgment and had a keen analytical mind, which contributed greatly to his success in his profession. He was a tireless student of matters pertaining to medicine and surgery and enjoyed a large following of loyal patients.

On January 24 he contracted influenza and on the 26th developed a streptococcus infection of the leg, to which he succumbed Sunday morning, January 29, 1933.

He is survived by his widow, Mrs. Corinne Spink (Dyer) Barden; two brothers, Howard and Everett Barden; and two daughters, Dorothea and Antoinette Barden.

Walter C. Gordon
Albert H. Miller
Committee

Richard Francis Duncan, B.S., M.D.

Richard F. Duncan was born in Williamstown, Massachusetts, on July 20, 1865. He prepared for college in the local schools and entered Massachusetts State College in the fall of 1882 and was graduated in 1886 with the degree of Bachelor of Science. In his college days Duncan, who was possessed of an unusually powerful physique, gained more than local fame for his feats of strength; he excelled in football, fencing, boxing and wrestling. He earned his M.D. degree at Albany Medical College in 1889. Dr. Duncan after his graduation practiced for a time in Poughkeepsie, N. Y., coming to Providence about the year 1892. He was fond of travel and in his young manhood he traveled extensively in the East Indies, the West Indies, and in South America.

About twenty years ago, Dr. Duncan became interested in ophthalmology and did post-graduate work in this subject at Harvard University. He has served in the eye departments of the Rhode Island Hospital, St. Joseph's Hospital and Sayles Memorial Hospital, and until his death, on December 9 last, he was refractionist in the eye out-patient department of the Rhode Island Hospital.

He was a member of the Providence Medical Association, the Rhode Island Medical Society, and also of a number of fraternal organizations.

Three years ago Dr. Duncan married Miss Ida Howard, who survives him.

Harry C. Messinger
Frank J. McCabe
Committee

SOCIETIES

The Rhode Island Medical Society

The regular quarterly meeting of the Rhode Island Medical Society was held Thursday, March 2, 1933, at the Medical Library Building, and was called to order at 4 P. M. by the President, Dr. N. Darrell Harvey. The minutes of the February meeting of the Council, and the House of Delegates were read by the Secretary and adopted.

The President called the attention of the Fellows to the deaths of the following Fellows since the last meeting:

Dr. R. F. Duncan, died Dec. 9, 1932; Dr. C. J. Mahoney, died Jan. 3, 1933; Dr. G. R. Barden, died Jan. 29, 1933; Dr. Gilbert Houston, died Feb. 21, 1933. He referred the matter to the Committee on Necrology.

The following program was then presented:

Papers: 1. "Modern Ideas in Regard to Epilepsy," Dr. Wm. N. Hughes, Providence. Discussion opened by Dr. Sanborn and continued by Drs. G. S. Mathews, and Corson.

2. "The Clinical Diagnosis of Hypo-pituitarism, Its Relation, Medical Practice and Its Limitations as to Treatment," Dr. Jay Perkins, Providence. Discussion opened by Dr. Niles Westcott and continued by Drs. McCann and Corvese, and J. E. Brown.

3. "Review of Recent Scarlet Fever Literature," Dr. L. J. Smith, West Warwick. Discussion by Dr. Richardson.

The President requested that any Fellows who desired to present a paper at the annual meeting of the Society notify him, and also stated that he would be glad to receive any suggestions as to essayists from outside the state for the annual meeting.

The President also called attention to the dinner which was given on February 20 at the Hotel Biltmore in honor of Dr. Edward H. Cary, President of the American Medical Association. Dr. Cary was the guest of the Rhode Island Medical Journal, which sponsored the dinner. Dr. Cary made an address dealing with the reports of the Committee on the Costs of Medical Care. Judge Ira Lloyd Letts, U. S. Justice of the District of Rhode Island, was the other speaker. Following the addresses, Dr. Frederick N. Brown, editor of the Rhode Island Medical Journal, who acted as toastmaster, presented Dr. Cary on behalf of the Journal a gold mounted brief case.

Upon adjournment a collation was served.

Respectfully submitted,

J. W. Leech, M.D., *Secretary*

The Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. James W. Leech, Monday evening, February 6, 1933, at 8:50 P. M. The records of the previous meeting were read and approved. The standing committee having approved their applications, the following were elected to membership in the Association: Ira C. Nichols, Gustave Pozzi, Arthur L. Springer, Nathan S. Rakatansky and Harrison F. Hyer.

Dr. Frederick N. Brown announced that Dr. E. F. Cary, President of the American Medical Association, would be guest of honor at the annual dinner of the Rhode Island Medical Journal staff. In view of the importance of the speaker and his subject, "Some Phases of the Report of the Committee on the Costs of Medical Care," it has been decided to invite to the dinner all members of the Rhode Island Medical Society and of the Providence Medical Association. This dinner will take place on February 20, 1933, at the Biltmore Hotel and the subscription will be $3.00.

Dr. Kasanin, clinical director at the State Hospital for Mental Diseases, then presented a very interesting specimen of melanosarcoma in the brain. The patient was a farmer of 48 years who had a small pigmented mole between the shoulders. This was removed by tying a string about it, and a generalized melanosarcomatosis resulted. The brain, which was presented, showed a general and very diffuse involvement of the pia and arachnoid, giving the brain a very curious blackened appearance.

The first communication of the evening was by Dr. Frank S. Hale on the subject, "Progress Toward Voluntary Sex Determination." He pointed out that Dorn and Sugarman have developed a test, using the injection of 10 c.c. of urine from a pregnant woman into the ear vein of a rabbit at puberty. If the fetus is a female, a very precocious development of the rabbit's testis occurs within 48 hours. This test, in the hands of its originators, was accurate in 80 out of 85 cases tested. Some investigators have felt that the time of coitus in relation to the menstrual cycle is of importance, more males resulting if coitus just pre-

cedes menstruation. Others have felt that alkalinization of the vagina at coitus will result in a greater proportion of males. Dr. Hale concluded that serological tests of pregnancy are being developed to a considerable degree of accuracy, but that the voluntary determination of sex is still uncertain. The paper was discussed by Drs. Appleton, Waterman and Hale.

The second paper, on "The Use of the Cutting Current in the Treatment of Endocervicitis (Hyams' Conization of the Cervix)," was read by Dr. George W. Waterman in the absence of the author, Dr. Mario Castallo, who was kept at home by illness.

Dr. Castallo's paper first discussed the anatomy and histology of the cervix, together with the pathological findings in endocervicitis. He pointed out that the natural mode of healing is the occlusion and obliteration of diseased glands, and that this should be aimed at in any method of treatment. Hyams accomplishes this by the use of a special electrode delivering a cutting current, used after topical application of 50% cocaine. Cervix and vagina are wiped dry and all endocervical mucosa is removed by means of the electric current. Bleeding is controlled by coagulating current. The patient is usually able to continue her ordinary activity and complete healing occurs in about six weeks. The author concluded that this method gives a good ambulatory method of treating a common gynecological disorder. The paper was illustrated by a number of lantern slides. Dr. Noyes opened the discussion, stressing the importance of this method in the nulliparous cervix, and the rarity of stenosis following its use. Discussion was continued by Drs. McCann, Hale and Waterman.

Three members of the Association having died since the last meeting, memorials were presented as follows:

Dr. R. F. Duncan, by Drs. Frank McCabe and Harry Messinger.

Dr. C. J. Mahoney, by Drs. J. C. O'Connell and Henry Hoye.

Dr. G. R. Barden, by Drs. W. C. Gordon and Albert Miller.

It was voted to spread these memorials on the records and to send copies to the relatives of the deceased members.

The meeting adjourned at 10:35 P. M. Collation was served. Attendance, 125.

Respectfully submitted,

Wilfred Pickles, M.D.,
Secretary Pro Tem.

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. James W. Leech, March 6, 1933, at 9:50 P. M. The records of the last meeting were read and approved. A letter from Dr. M. A. Castallo was read. Dr. Russell R. Hunt was elected to membership.

The first paper of the evening was read by Dr. Harris Moak, National Secretary of the American Association of Milk Commissions, New York, on "Certified Milk." Milk is the first and often the last food of life. It is forty years since the first plan for certified milk was found. Certified milk is fresh whole milk untreated, sold within twenty-four hours, kept at proper heat and produced under uniform standards, controlled and certified by medical commissions. Keeping bacteria out is the keystone. All cows are tested for tuberculosis, septic abortion and other diseases. Careful control and weekly inspection of all handlers of the milk are required. All the milk used in the typhoid epidemic at Montreal had been pasteurized but then handled by two carriers. Governmental control he does not think is sufficient. The nutritional value of milk in mother and child was accentuated and analyzed. To reach the proper standard the food of the cow must be properly balanced. Dr. Chapin says milk is a physiological fluid, not a mere mixture. The content of vitamins and nutritional matters in milk can be now regulated by feeding and very appreciable amounts of vitamin D are now produced in certified milks.

The paper was discussed by Dr. Buffum, Chairman of the Certified Milk Commission, Professor Frederick P. Gorham, Deputy Milk Inspector of Providence, Dr. Utter and Dr. Moak.

The second paper was by Dr. Walter G. Weigner, on "Physical Symptoms from Psychological Sources." This was a well presented plea for the careful consideration of psychological aspects of patients presenting symptoms of apparent organic pathology. A case was reported that had an appendectomy after a year of intermittent abdominal pain and nausea and had not received relief. Desire to avoid her nursing career apparently was the ultimate cause and her symptoms ceased when she gave up this career. He discussed the psychological aspects of several common conditions. The paper was discussed by Drs. Ruggles, McDonald, A. P. Noyes, Lott, Bray, Hopkins, Gray and Weigner.

The meeting adjourned at 11:10 P. M. Attendance, 132. Collation was served.

Respectfully submitted,

Peter Pineo Chase,
Secretary

HOSPITALS

St. Joseph's Hospital

A meeting of St. Joseph's Hospital Staff Association was held in the new auditorium February 9, 1933, called to order by Dr. Earl F. Kelly, acting President, at 9 P. M.

The first paper of the evening was read by Dr. Andrew W. Mahoney of Providence, on "Ectopic Pregnancy." The discussion of this very interesting paper was presented by Dr. Wm. McQuirk and Dr. Ira Noyes.

The second paper of the evening was read by Dr. John R. Bernardo of Bristol, on "Some Causes of Uterine Hemorrhage." This paper covered in detail the most of the causes of uterine bleeding. The discussion was by Dr. James Clune, Dr. Wm. McQuirk, Dr. Ira Noyes, and Dr. Frank Hale.

The two papers of the evening were given by the gynecological department of the hospital.

There were 56 members present, and at the close of the papers a collation was served by the hospital to the members.

Respectfully submitted,

Earl F. Kelly, *Secretary*

BOOK REVIEWS

One Hour of Medical History, Vol. 2, by Benjamin Spector, M.D. Beacon Press, Inc.

The book is compiled from a pageant given by students of Tufts Medical College under the direction of Dr. Spector. Students represent dramatically some renowned figure or event in medicine. The present volume portrays Golen, Avicuma, John Hunter, Claude Bernard, Madame Curie and several others. It is a small book, can be carried in the pocket, has excellent print and paper, is entertaining and well worth reading. Recommended.

Synopsis of Gynecology. H. S. Crossen, M.D. C. V. Mosby Co., 1932, Publishers.

A small book, which readily fits the pocket, intended for medical students, it contains within its 200 odd pages of closely printed matter and illustrations, a most excellent summary of modern methods and thought in gynecology. Beginning with well thought out and illustrated instructions for careful pelvic examination and the description of various of the more recent tests for tubal patency, etc., the student is carried on through chapters on diagnosis pathology and treatment, including all the more important gynecological disorders. Excellent chapters on pelvic inflammations and new growths are included. A very nicely condensed chapter, which brings quite thoroughly up-to-date the position of the endocrines, seems quite in line with the clearcut and forceful style of the rest of the book.

A book which will be a great boon to the student but might be of great help also to the busy practitioner or even specialist in clarifying what is at present known about gynecology.

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—E. V. McCollum, International Clinics, June, 1932

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ORIGINAL ARTICLES

ANNUAL REPORT
OF THE
PROVIDENCE TUBERCULOSIS LEAGUE

The objects, aims and ideals of every community tuberculosis program should be, adequate service for the whole community.

This year, perhaps to a greater extent than ever before, we have approached more nearly to this ideal, though we still have a long way to go. Practically every agency dealing with the health and welfare of our people has participated in sending in to the tuberculosis clinic more than twice as many persons as in any previous year.

One hundred and ninety-two of our physicians have sent in for examination and X-ray 877 individuals for a total of 1,399 clinic visits, as compared with 591 individuals and 1,100 clinic visits during 1931.

From this group alone, 176 new, positive cases of tuberculosis have been found. This wonderful co-operation by the physicians is a record that very few communities can equal and none surpass.

During the year three new projects have been started. Dr. Zambarano, co-operating with the Charles V. Chapin Hospital, opened a pneumothorax clinic at the Hospital where ex-sanatorium patients who had received collapse therapy might continue their treatment and where other suitable cases might be cared for without the expense of weekly trips to the sanatorium.

The clinic opened in February with two physicians and four patients in attendance. The clinic has grown steadily in popularity, and in September it was found necessary to add another clinic session a week to care for the increased numbers. There are now, in addition to Dr. Zambarano, Drs. Harvey Wellman, Frank Merlino and J. Murray Beardsley interested in this work, and since its beginning 55 patients have received 721 refills.

The Superintendent, Dr. Richardson, and the entire medical staff, with the X-ray department of the Hospital, have shown great interest in the work and have co-operated and assisted in every way possible.

Since 1926 there had accumulated in our files the records of 2,900 individuals, none of whom gave a history of exposure to tuberculosis but who, on first examination, presented some symptoms, signs or X-ray findings that made us suspicious that, if they did not already have the disease, they might develop it at some future date.

The majority were school children who are now between the ages of 14 and 24 years, the most difficult and perhaps the most important age group to reach. How to get them back for re-examination has been a problem that, heretofore, we have utterly failed to meet.

Our first inkling of what might be done came in March and April, when Mr. Edward P. Reidy, Director of the Department of Public Aid, detailed to our organization a young woman and a young man who were sent into the homes of some of these patients with a personal message signed by me. This measure met with some success and was continued until these workers were withdrawn for another project.

In September, a little money being available in our budget, permission was obtained from the Community Fund to continue this work as an experiment, this time with paid workers. Two young women, Miss Polly Perkins and Miss Katherine Burt, were selected. What they have achieved justifies this means of follow-up and opens a new field, heretofore practically untouched. 46.2% of their visits were productive, and up to January 1, 1933, among the 473 persons brought in for examination through their efforts, 68 new, positive cases of tuberculosis were found.

Too much cannot be said in praise of their work, and I sincerely hope that means will be found to continue this type of worker, that persons who do not, for one reason or another, fall within the sphere of any of our follow-up agencies, may receive the same care and consideration as those who do.

The best medical service in every country is at the command of the rich and the poor, but people in moderate circumstances who like to pay their

way, find the costs often times quite beyond their means, and consequently neglect themselves until disease is well advanced. This is particularly true in tuberculosis.

That this group might be served, a consultation and diagnostic service for private physician's cases was opened in October at my home, 55 Olive Street, where such patients might be seen by appointment at a very moderate fee.

If this clinic can be developed it should prove a very definite asset in the control of tuberculosis in Providence, as it opens up a new field among a group of people not at present known to the tuberculosis service of our city.

The attendance at the tuberculosis clinics by old and new patients for the year totaled 17,036, compared with 14,624 during the year 1931, an increase of 2,412, or 16.5%.

During the year 1932, 4,135 new patients were admitted to the clinics and 3,247 re-admitted, a total of 7,382 persons, or 391 more than during 1931, an increase here, therefore, of 5.6%.

Among this group 1,073 were found to have tuberculosis. 1,237 were considered as suspects and kept for further observation, as were 2,144 clinically non-tuberculous contacts, and 1,453 no evidence, non-contacts; 1,475 were discharged as non-tuberculous.

The number of new cases of tuberculosis diagnosed during the year, namely 573, exceeds last year's total by 142. They were classified as follows: 368 were considered to be in the minimal stage; 120 were moderately advanced; 30 were far advanced; and 55 suffered from non-pulmonary forms of the disease.

Living in the homes of the newly diagnosed cases there was found to be 1,197 contacts. As many of these as we have been able to get into the clinic have been examined.

All told, during the year, 2,953 contacts have been examined; 2,602 tuberculin skin tests have been given; and 3,950 X-rays have been taken. On January 1st, 1933, the total tuberculosis register, including both old and new cases and their contacts, contained, altogether, 14,698 names, as against 13,999 a year ago on the same date.

The number of deaths from all forms of tuberculosis in the city of Providence for the year 1932 was 118, including 7 non-residents. In addition there were 56 Providence residents who died of tuberculosis elsewhere, making our corrected death rate 65.1 per hundred thousand for the year 1932, as against 70.3 per hundred thousand in 1931, a decline of five points, or 7%.

This decrease occurring during the stress and strain of these trying times may easily lead to an optimistic outlook for the early eradication of the disease. Such a view-point would be a grave mistake, as we still have many open cases of tuberculosis living in our midst, any and all of whom furnish a source of infection to their families and intimate associates. Many are living under the most unsatisfactory conditions, crowded together and inadequately fed. Who can believe that, under these conditions, the death rate and the incidence of the disease will continue to decline?

Tuberculosis, unlike most other diseases, is very apt to be slow in its onset, sometimes years elapsing between infection and actual illness from the disease. Time alone will show us that the economics in practice today was a poor investment for the health, happiness and welfare of many of our citizens in the future.

It is my opinion that, up to the present time, the prolonged period of mental strain, worry, fear and discouragement, have played a greater part in the breakdown from tuberculosis than any other factor, and that, unless we find some means to make living conditions easier for many of our people, we shall be unworthy of the past records of our city and reckless of the future of untold numbers of our young people.

Lakeside has completed another successful year under the able direction of Miss Mary Murray.

The number of days' care given was increased by 1,194 days. This year, for the first time, all children who reacted positively to the tuberculin skin test were X-rayed at Lakeside, as the institution is now equipped to do this work. In addition to the usual chest picture, one of the abdomen was also taken, with the result that among 100 children whose chest picture was apparently normal, 7, or 7%, showed calcified glands in the abdomen. This explains in a measure the discrepancy between the numbers who react to the tuberculin skin test and show no evidence of the disease in the usual chest X-ray. The findings represent one more step forward in our study of the disease in children.

The details of the work done at the institution are presented in Miss Murray's report.

To the Community Fund, Miss Murray, Dr. Buffum, Mrs. Burnill and the entire staff, the community is indebted for a well-equipped, efficiently

run institution, which does an immeasurable amount of good for the children of Providence.

Since 1924 we have carried on work among the school children of Providence, skin testing and examining on an average of about 3,500 a year. Up to 1930 the work was confined very largely to the primary grades. At that time a study of the findings convinced us that, while the work had a very definite educational value, the number of positive cases found was relatively small when compared with the number who reacted positively to the tuberculin skin test, while among a group of older children the positive findings were markedly higher.

Since children from 6 to 12 years of age bore their tuberculosis infection remarkably well, and that intelligent home care was usually sufficient, it was decided that, since we could not cover the whole school system, it would be well to confine the work to the higher grades, where the greatest number of childhood type cases are found, and the adult pulmonary form makes its appearance with increasing frequency.

The High School group was surveyed in 1931 and, as an experiment, two Junior High Schools during 1932. As a result of these studies the School Department has decided to offer to all children in the 7th grade in the Junior High Schools and the 10th grade in the High Schools, the opportunity to be examined, skin tested and, if they react, X-rayed, with these objectives in view:

1. To screen out all children with tuberculosis and determine the significance of their lesions and the source of their infection.
2. To plan adequate care for them in so far as the school system is concerned.
3. Follow-up work in the homes to insure periodic re-examinations.
4. To educate the children and their families, through the school nursing service, in caring for themselves and protecting others.
5. To assemble all data in such form that it may be available for future studies of this problem.

From time to time throughout the year the Department of Public Aid has supplied us, from among the unemployed, a number of willing workers; it is a pleasure to testify to their worth.

Our 1932 budget was figured on a basis of 16,000 clinic visits; when it became apparent that we would exceed this number, the Community Fund granted us an additional $324 for X-ray expense, rather than have the work curtailed.

This year, for the first time, the annual grant of $3,416 which the Rhode Island Tuberculosis Association has been receiving as their allotment from the Community Fund, was discontinued after $1,708 had been paid, thus effecting a saving of this amount in the League's budget.

In lieu of this grant, the State Association assumed all responsibility for the conduct of the annual Christmas Seal Sale, the proceeds from which, after deducting expenses, to be divided as follows:

1. That the Providence Tuberculosis League shall receive an amount sufficient to balance their 1932 budget, namely $792.
2. That the State Association retain an amount sufficient to balance their 1933 budget.
3. That all moneys received in excess shall be turned over to the Community Fund for the use of tuberculosis work in Providence.

On December 31st, 1932, as returns from the Seal Sale were not complete, the State Association delayed payment, thus a deficit in the League's budget would have occurred had it not been for the Community Fund granting the request of the Executive Committee that expenditures for medical and clerical work, office supplies, etc., paid for out of the League's budget on behalf of Lakeside, be credited as a receipt to the League's budget and charged to the Lakeside budget.

This request was granted, as it provided for a more equitable distribution of expenses incurred in the League's and Lakeside's budgets, and made possible a more accurate statement of costs of maintenance at Lakeside in comparison with other similar institutions.

The treatment accorded this organization by the Community Fund in this and in many other ways again exemplifies their willingness to assist, in every way possible, an agency in its endeavors to serve the community to the best of its ability. For this attitude we are deeply appreciative.

The details of receipts and expenditures will be found in the Treasurer's report.

The list has grown too long to even mention the names of the many organizations and individuals who have co-operated and assisted us during the past year. On behalf of the Executive Committee, I wish to thank each and every one for their support, and add my personal thanks together with the earnest request that, during the coming year, even greater use may be made of this organization.

To the District, School, and other nurses, and our own staff, including those supplied by the Director of Public Aid, who have ably assisted at one time or another during the year; to Dr. Frank Merlino, without whose assistance Dr. Zambarano and myself would have been hard-pushed many times; and to Mrs. Hazel Simone, who has most efficiently served as nurse in all our clinics, my grateful thanks are due.

It is a pleasure to again thank the Executive Committee for their interest, confidence and support in building up a useful community agency.

I cannot close this report without expressing my personal thanks to the many physicians of Providence who, during the year, have referred patients in greatly increased numbers to the clinics. In these trying times many destructive forces are in operation, and unless we redouble our efforts during the coming years, much of the ground gained during past years may be lost. I therefore urge upon you a greater and more wide-spread participation in the work, for it is to you and others of the profession that I look with confidence to eventually build up and maintain a successful community tuberculosis program.

JOHN I. PINCKNEY, M.D.

A STUDY OF DEAFNESS

(One Hundred Cases)

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(Carried out in the Hard-of-Hearing Clinic of the North End Dispensary, Providence, R. I.)

People possessed of good hearing can hardly appreciate the handicap caused by imperfections in the functioning of the organs of hearing. It is only when we are brought into frequent contact with these cases that we begin to realize how much distress deafness can bring. There is no outward sign of disability and the individual frequently finds himself thrust aside because he is apparently too dull to comprehend. These deafened persons find it difficult to secure or keep a position and disappointment in the effort to be self-supporting brings about a feeling of despair, hopelessness, and isolation, which adds to the depression usually attendant on these cases. There is a prevalent idea that deafness is a condition that cannot be helped and as in the case of cancer, patients consider it a disease to be concealed; and like cancer, they present themselves for treatment when the condition has passed the stage in which it is most amenable to treatment.

As in other things, nature has been generous in furnishing us with almost double the hearing power necessary for ordinary use, and practically one-half the total power may be lost in each ear without serious inconvenience. The majority of adults over 35 years of age have defective hearing at least in one ear. Until recent years this acquired deafness was considered a result of conditions occurring in adult life. We now know that deafness commences in early life and even in childhood, although the loss of hearing may not be great enough to draw attention until middle age is reached.

There is so much confusion and misunderstanding resulting from the misuse of the terms, "hard-of-hearing," "deaf," and "deafened," that it is necessary to explain their general usage. The average hard-of-hearing individual objects to being called deaf and whether they show it or not, are most invariably irritated when the term is applied to their condition.

These terms may be thus defined:

"Deaf"—Those who are congenitally deaf and have no usable residual hearing.

"Deafened"—Those who have no usable residual hearing, but who at one time had usable hearing.

"Hard of Hearing"—Those with defective hearing but who still have usable residual hearing.

The Ear Mechanism

The mechanism of hearing consists of sound waves being conducted through the auditory canal to the drum through which they are transmitted. The vibrations of the drum sets up like vibrations in the ossicles, the malleus, incus and stapes. These waves set in vibration the foot plate of the stapes which moves freely by means of the annular ligament, and are thus conducted to the internal ear, the cochlea, where a proper interpretation of them is sent to the hearing center in the brain, through the auditory nerve. Hearing depends upon two factors: the proper conduction of sound waves and the perception of these waves. The stability of the mechanism depends upon an equalized air pressure behind and in front of the drum. Air reaches the outside of the drum through the ear canal and the inside through the eustachian tube. This equality should always be maintained.

It has been found that 90% of cases with defective hearing have or have had trouble with the middle ear, indicating that the condition originated with the sound conducting mechanism, although the average case of advanced deafness is a combination of both types.

We now come to a consideration of the normal ear. An ear may be considered normal when it can hear:

1. Watch tick 30 to 50 inches.
2. Conversational voice 60-70 feet.
3. Whispered voice 20 feet.
4. Musical tones ranging between 18 double vibrations and 41,000 double vibrations per second.
5. A vibrating tuning fork of 128 double vibrations, twice as long by air as by bone conduction.

Defective hearing may be due either to an impairment of the sound conducting mechanism, which consists of the canal, the tympanic membrane and the ossicles, or the sound perception mechanism, which consists of the labyrinth, and the auditory nerve. Usually it is a combination of both with one form predominating. It is highly essential to determine the type of deafness before treatment can be instituted.

The Sound Conducting Mechanism

The sound conducting mechanism consists of the tympanic membrane, the ossicles of the middle ear, the endolymph, and perilymph of the labyrinth. A lesion involving these structures, such as an occlusion of the external canal, fixation of the stapes, stenosis of the Eustachian tubes, etc., interferes with the perception of the lower musical tones, while the perception of the higher tones is unimpaired. This is due to the fact that low musical tones represent long sound waves, with slow vibration of relatively great amplitude, while high musical tones are produced by short waves, with rapid vibrations of very small amplitude. Therefore it can be seen that any mechanical condition interfering with the action of the ossicular chain would interfere first with a slower and greater excursion necessary in transmitting low tones, while a much greater fixation of the ossicular chain would be necessary to inhibit the transmission of high tones requiring less movement of the ossicles.

The Sound Perception Mechanism

The sound perception mechanism consists of the labyrinth, the auditory nerve, and the cerebral centers. A lesion involving these structures interferes with the perception of high musical tones. This is due to the fact that part of the basilar membrane which has to do with the perception of the high tones is situated in the lower part of the cochlea, that part which is in the most intimate relation to the footplate of the stapes and the membrane of the round window. It is believed that in most labyrinthine disorders not of congenital origin, this part of the cochlea and basilar membrane is most frequently involved and that the perception of the higher tones is thereby abolished.

Bone and Air Conduction of Sound

In air conduction the sound waves are carried to the conducting mechanism through the medium of the surrounding atmosphere and the vibrating body producing the sound waves does not come in contact with the bony structures of the head.

In bone conduction the sound waves are carried to the conducting mechanism or directly to the perception mechanism, through the medium of the bones of the head and the vibrating body producing the sound waves is held in contact with the bony structures.

The normal ear will hear twice as long by air as by bone conduction. This is called the positive Rinné test. When bone conduction equals or is longer than air conduction it indicates that a lesion of the conducting mechanism exists. This is called the Negative Rinné.

Impairment of the hearing due to disease of the ear may be briefly summarized as follows:

1. Lesions located in the sound conducting mechanism.
   a. Elevates the lower tone limit.
   b. Alters the ratio between bone and air conduction.
2. Lesions located in the sound perception mechanism.
   a. Lowers the upper tone limit with or without elevation of the lower tone limit.
   b. Bone conduction is diminished.

The following tests are made use of in determining the acuity of hearing. (It is essential that these tests be conducted in a quiet room.)

1. Watch tick.
   a. The watch's tick varies and its range should be first decided by use on individual with known normal hearing to determine the distance it can be heard, and this used as a standard.

2. Whispered voice.
   a. The numbers or words are whispered at the end of expiration. This test is employed at a distance of 20 feet.
3. Conversational voice.
   a. Usually employed for persons who are very deaf. Conducted at a distance of 60-70 feet.
4. Tuning forks or audiometer.
5. Galton whistle.
6. Rinné Test.
   This is one of the most reliable and useful tests of middle ear diseases. In tympanic disease the normal ratio may be absolutely reversed.
7. Weber Test.
   The 128 tuning fork is set in vibration and placed on the vertex of the head or on the bridge of the nose. The sound will be heard loudest in the diseased ear if the lesion is located in any part of the conducting apparatus and in the sound ear it the disease is confined to the labyrinth or auditory nerve.
8. Politzer Test.
   This test is used to determine the patuency of the Eustachian tube. Ordinarily the tubes are not patulous except in the acts of swallowing or yawning. The 128 d. v. fork is set in vibration and held in front of the patient's nostrils who is then asked to swallow. If on swallowing he hears the sound louder it indicates a normal opening of the tubes and shows them normal.
9. Schwabach Test.
   This test is used as a comparison with the normal.

If there is a thickening of the drum head in a progressive middle ear disease the patient will hear most readily the consonant sounds that require most force in their production; such as t, d, p, b. These resemble each other in tone value and are all formed in the front of the mouth. A moderate loss of hearing causes these consonants to sound almost alike. The other consonant sounds having the greater force value such as k, g, are formed in the back of the mouth, and are accompanied by a less easily recognizable facial expression than the frontal consonants. F, l, n, m, the consonant sounds having the least force value resemble in facial construction the harder consonant sounds. It usually happens that deaf persons will more often mistakenly substitute in a sentence a hard consonant for a soft one most nearly resembling it. Lip reading, although it eventually becomes more or less habitual to the deaf person, is another source for the expenditure of nervous energy in the effort to see as well as to hear.

Our perception of each sound is guided by that preceding it. If one is perceived incorrectly the next is more likely to be wrongly interpreted. Individuals with imperfect hearing, hear those consonants with the greater force value; others are detected by lip reading, and the rest are usually inferred. Each sentence thus assumes the proportions of a puzzle to be solved, becoming a third demand on the nervous energy in addition to hearing and seeing. There are thus three distinct processes to achieve that the person with normal hearing accomplishes without the least conscious effort. Those in contact with persons having imperfect hearing can make it considerably easier for them by articulating clearly and using well modulated speech of even tenor.

One eminent authority has said that the best method of treating deafness was to prevent it. This is of particular significance in childhood. The care of the nose and throat is of considerable importance. Stürn has been impressed with the fact that chronic progressive deafness begins in childhood. Thirty-two per cent of 200 patients suffering from deafness owed their disability to naso-pharyngeal disease in childhood. He affirmed that he rarely saw a perfectly normal drum in a child with adenoids. Our records of 100 cases taken from the Ear clinic of the North End Dispensary were very close to these figures. Thirty-eight cases gave a history of nasal discharge, aural discharge, nasal obstruction, tonsilitis or other condition resulting from rhino-pharyngeal pathology.

In all acute conditions of the nose or naso-pharynx, the patient should be cautioned against compressing both nostrils and forcibly blowing the nose, as this procedure may force some of the secretion into the middle ear. Where there is much muco-purulent secretion, nasal suction is of some value. A water suction apparatus for home use is efficient and inexpensive. This should, however, be used under the guidance of the physician. Attention should be paid to diseased tonsils and adenoids.

Children should receive a careful ear and nose examination after the exanthematous diseases, since we know that many of these childhood diseases leave deafness in their wake.

Before undertaking the treatment of a case of impaired hearing a most comprehensive examination is necessary to determine the type of deafness present, the primary cause, the date of onset and all complicating factors. All previous aural ills of the patient should be gone into and also the family history in regards to deafness as over 50% give a definite history of deafness in other blood relatives. In all cases of chronic or progressive deafness of doubtful etiology, a blood Wasserman should be done, and if negative, checking up with a spinal fluid test for syphilis, irrespective of the history obtained. The examination should include a careful study for possible foci of infection as the tonsils, sinuses, teeth, gastro-intestinal tract and the endocrine system. The patient's habits should be gone into regarding the use of alcohol, tobacco and such drugs as quinine and the salicylates.

Hearing tests with the audiometer should be made and recorded as a check on the future progress of the disease. Retesting of the hearing acuity should be done at definite intervals, to note the progress made. In the majority of acute and subacute cases where the history is not unfavorable, the prognosis is good and the anxiety of the patient may be frankly relieved.

The treatment of deafness has been futile in many cases partly because too little attention has been paid to the diagnosis and all cases whether of nerve or conduction deafness, have been treated as though the deafness was due to one cause. This attitude was taken alike by certain otologists and by those attempting to commercialize a multitude of devices supposedly offering a cure. As long as these cases remain massed under one generic term—deafness—quackery and unsuitable mechanical devices will flourish. Electrical and mechanical devices by the score are being recommended as a cure. Unfortunately they often fall into the hands of men not competent to determine the form of deafness with which they are dealing and who use these agents promiscuously on all cases.

Diathermy and all other electric modalities should be regarded only as an adjunct to the usual sane, safe, and practical forms of treatment which experience and good judgment have proven to be meritorious and which should be used first. The use of these electrical agents promiscuously on many conditions as otosclerosis, suppurative labyrinthitis, Menièr's disease, etc., may not only fail to help them but may actually make them much worse. We are living in a machine age. The laity has seen and been impressed with the success of the numerous mechanical devices in their everyday life. Man has conquered the sea and the air and more recently have we seen the advent of the robot. Is is any wonder that with this background demonstrating the success of mechanics, that the deafened will lend a credulous ear to any of these heralded "epoch-making discoveries" for the cure of deafness? As Pope has said, "Hope springs eternal in the human breast."

To these unfortunates, eager for the slightest ray of hope, nothing is impossible. They fall easy victims to the plausible theories of manufacturers with expensive equipment guaranteed to cure deafness by its use in the home. Such is the patient's mental condition—hope being the father of the wish—that for a time they delude themselves in the belief that their hearing is improving, and praise the device until such time as they are compelled to admit its failure.

Progressive deafness of young adults has been embraced by the term "otosclerosis"—a mystic term to the general practitioner, under which heading all progressive deafness is classed. This is all the more pertinent as we have as yet no method for diagnosing otosclerosis from functional tests alone. Otosclerosis is a spongification of the bone of the labyrinthine capsule. When this spongifying of the labyrinth capsule develops in the region of the oval window the first evidences that appear of a defect in hearing are those resulting from rigidity of the stapes. These symptoms are identical with those resulting from other pathologic processes producing rigidity in the sound conducting mechanism. On the other hand, spongification of the labyrinth capsule may develop at a distance from the oval window when the symptoms produced are those of nerve deafness. Nerve deafness, moreover, develops sooner or later in all cases of otosclerosis.

The diagnosis of otosclerosis has therefore to concern itself, on the one hand, with the differentiation of, primarily, fixation of the stapes due to changes in the osseous labyrinth from other conditions producing fixation of the conducting mechanism; and on the other hand with the diagnosis of primary nerve deafness associated with spongify-

ing of the labyrinthine capsule from other conditions producing nerve degeneration. Dr. C. Stein points out that one of the most constant and important alterations associated with otosclerosis is a lowering of the blood calcium and a raising of the cholesterol levels. Moreover, it has been found that otosclerotic symptoms are likely to be much aggravated during pregnancy, an unusual calcium requirement existing at that time.

He favors the treatment advocated by Leicher, which consists of the intravenous administration of calcium preparations, using three injections the first week and one each week thereafter. In pregnant women he continues this treatment throughout the course of gestation.

Dr. Stein associates otosclerosis with vasoneurosis in a high percentage of his patients, and believes they require definite circulatory stimulation rather than preparations of a sedative character. He favors the caffeine group for this purpose. Particularly in otosclerotic women at the menopause he finds such preparations of value in overcoming vertigo and headache traceable to the otosclerotic condition.

When the functional tests give the Bezold triad —elevation of the lower tone limit, prolonged bone conduction, and a negative Rinné reaction,—reactions characteristic of an obstruction in sound conduction and when, in addition, the examination excludes the presence of a tubo-tympanic process—that is, when the tube is found patulent, and the drum membrane normal, the diagnosis of primary fixation of the stapes, the result of spongifying of the labyrinth capsule, seems assured.

Before treatment can be instituted, it is essential that a careful history be taken and a thorough examination made. The following plan can be carried out:

I. A careful history dating back to childhood. There is usually a history of sore throats in childhood, although the adult patient may deny that he has had any local trouble for years. As long as the primary infection is a local process and the general circulation is protected by the lymph nodes, we have marked local symptoms; but when the barrier afforded by the lymph nodes is overcome, the local irritation is manifest in the end organ and not locally.

II. Tests of the hearing with the audiometer and tuning forks.

III. Local examination of the tympanic membrane and eustachian tube, using the Siegals otoscope, pharyngeal mirror, and naso-pharyngoscope.

IV. General physical examination.

V. An examination of a twenty-four hour urine, stool examination and blood chemistry. Basal metabolism where indicated. The blood chemistry to include Wasserman, test for sugar, uric acid % and calcium %. Kopetsky considers derangement in blood calcium as diagnostic of a progressive deafness.

VI. An X-ray of the teeth, sinuses and mastoid processes.

Chronic deafness never progresses steadily, but has periods of exacerbation, then improvement and finally remains stationary until the next cycle occurs. The treatment of chronic deafness is largely, particularly at first, a rhinological problem.

The history of the onset of a case of chronic deafness is usually the same. Following the infectious diseases, grippe, tonsilitis, rhinitis, etc., the patient notices that he was beginning to become hard of hearing. The detailed history usually discloses the fact that after this infection the patient was subject to recurrent acute infections which he termed colds, each so-called "cold" adding to his deafness. Every story of recurrent "colds" should be investigated.

The family physician must be impressed with the possibilities of the common cold as a potential factor in the etiology of deafness. It is he who usually sees the case at the onset of illness and has the opportunity of seeing that precautions are taken.

Usually this represents an acute exacerbation of a chronic infection and upon the removal of the primary focus, the hearing will improve to a certain extent without any treatment. This represents the partial clearing up of the toxemia, but to achieve any further gain treatment must be instituted.

The general practitioner understands only two kinds of deafness; one is due to wax and is curable, and the other is not due to wax and is not curable. Many physicians still consider the drum as the sole guide in their diagnosis of deafness. We now know that the drum itself is relatively unimportant. Sounds probably reach the inner ear by means of the round window and as long as the eustachian tube and inner ear are healthy it does not matter much about the drum.

Many cases of deafness in adults have their origin in childhood. It is usually difficult to restore

the hearing back to a normal condition, as permanent connective tissue changes have taken place which it is impossible to overcome.

The following is the order of treatment.

I. Removal of the local etiological factors in childhood.
   1. Removal of diseased tonsils and adenoids.
   2. Removal of hypertrophied posterior tips of the inferior turbinates. Examination for adhesions in the fossa of Rosenmuller.

II. Removal of Systemic Causes.
   1. Gastro-Intestinal Tract.
   2. Focal Infections (teeth, tonsils, sinuses, etc.)
   3. Endocrine System.
   4. Nervous System.

III. Treatment of Systemic Diseases.
   1. Hay Fever.
   2. Syphilis.

IV. Direct Local Treatment.
   1. To eustachian tube; application of medicaments.
      Politizeration and catheterization.
      Passing of bougies and applicators.
   2. To typmpanic membrane.
      Mechanical massage.
      Otoscope or mechanical vibrators.
      Applications to the drum as cantharides or collodion.
   3. Electrical adjuvants.
      Diathermy—ultra violet ray—X-ray.

V. Lip reading to every patient with an advanced degree of deafness.

Elimination of Local Etiological Factors—Tonsils and Adenoids

The tonsils and adenoids should be given every consideration in the treatment of deafness. The tonsils should be carefully palpated and if there is any evidence of purulent secretion they should be removed before attempting any treatment of the ears. Tonsils contribute to deafness both by the local effect on the adjacent tissues which govern intratympanic pressure and by the indirect effect upon the auditory nerve. Particularly is this true in deafness of children. Care should be taken that all adhesions in the fossa of Rosenmuller are broken down. On the completion of an operation the operator should pass his finger into the naso-pharynx, examining the fossae to remove any adenoid remnants or adhesions that might be present. This is best done with the finger, much more safely and effectively than it can be done with any instrument. It is to be deplored that removal of the tonsils and adenoids has become such a common operation that every general practitioner feels competent to perform it.

For the best interest of the patient and the profession the question of tonsils and adenoid operation should be given more consideration than it receives today. It should be done less frequently and more carefully—for a careless adenoidectomy truly plays an important part in the question of deafness. We have all seen the zealous intern, or young practitioner, curette the adenoid tissue from the postnasal space, using his instrument industriously in the attempt to thoroughly remove all remnants of adenoid tissue. This type of operation does much more harm than good. It would be best for the operator who is not specially trained to limit himself to the use of a La Force Aednotome or similarly protected instrument, using it only in the midline and not attempting to remove the lateral fragments.

Frequently these small fragments of lymphatic tissue, but more frequently bands of connective tissue holding the tubal muscles on the stretch, may be the cause of distressing tinnitus, and many cases can be relieved simply by digital manipulation of Rosenmuller's fossa, with the breaking up of these adhesions. The writer has found that considerable relief has been afforded in certain cases by the use of the Tesla current in combination with this digital manipulation. The current should be compatible with the comfort of the patient and the lips of the eustachian tube and the fossa are gently manipulated with the forefingers of either hand; the right forefinger of the right side and vice versa.

Dr. Norval Pearce in the report of an investigation undertaken in Chicago a few years ago claims that the majority of children with defective hearing could be readily treated by politzeration and the hearing brought back to a considerable degree. While this work carried on at the Hard-of-Hearing Clinic of the North End Dispensary does not permit quite such an optimistic report, it has established the value of politzeration in these cases of children where more manipulative procedures are not tolerated. It was also observed that fixation of the stapes is a common feature in cases of deafness where the adenoids figure prominently as a cause.

The method carried out at the North End Dispensary has been as follows:

The nasal cavity is first cleansed with a saline douche at body temperature. The second step is the use of tampons with a solution of 30% argyrol with ephedrine hydrochloride, which is made up fresh on each clinic day. One tampon is inserted along the floor of the nose on an aluminum applicator, curved in the form of a eustachian catheter and applied to the eustachian orifice. Another tampon is inserted into the middle meatus. A careful examination of these patients has revealed the fact that 65% of the adult cases that have presented themselves for treatment for a hearing condition have shown some evidence of nasal pathology. Practically all of these patients had some postnasal discharge, which in the majority of cases was the result of sinus infection. Other cases showed a hyperplagia, polypoid degeneration or a low-grade nasal infection which on being treated aided materially in the improvement of the patients' hearing:

Droplets of pus from a sinus or nasal infection may readily find their way into the eustachian tube, causing disturbances in hearing, vertigo and tinnitus. The study of these patients has definitely shown that although they may present no definite otitic pathology, they will readily yield to conservative sinus therapy and demonstrate the fact that the problem is chiefly a rhinological one.

A careful inspection of the naso-pharynx is also essential. Posterior rhinoscopic or naso-pharyngoscopic examination will often reveal pathological conditions of this region. The posterior tips of the inferior turbinates are particularly important as hyperplagia is a fairly common occurrence. Anatomically they are in close proximity to the eustachian tube, so that any hypertrophy or edema will impair the function of the tube.

These tampons are left in place for about 30 minutes. Following this the patients are politzerized with comparative safety, as there is little danger of blowing any nasal secretion into the tube. Simple politzeration has proven itself to be of only temporary benefit, and this procedure is usually followed up by a vaporizer containing a heated iodine, camphor, and menthol solution, which is connected to the catheter.

In the first stage of hypertrophic salpingitis, where the pathology is mostly confined to the mouth of the tube, the hearing may be restored to normal, in the majority of cases, by careful treatment. In the second stage, where the low limits are just beginning to be elevated, a large number will improve under treatment.

In the treatment described above, one of the most satisfactory things to the patient has been the relief of his tinnitus. This is one of the symptoms most frequently complained of and often quite bitterly. Usually this condition is more distressing to the patient than the loss of hearing, and the proper treatment will in many instances alleviate this symptom, provided it is not a symptom of a general condition, such as hypertension, arteriosclerosis, chronic interstitial nephritis, syphilis, etc.

II. Removal of Systemic Causes

Focal infection is playing a great part in modern medicine. In hearing particularly does it play an important role. The general physical condition of the patient should receive the utmost consideration, as no local treatment will accomplish satisfactory results unless the patient's vitality is at par.

1. Gastro-Intestinal Tract.

Recently J. E. R. McDonaugh published his work on chronic intestinal intoxication, showing that it plays a great importance in sensory conditions in both adults and children, especially as determining chronic progressive deafness of both catarrhal middle ear and internal ear types. Yearsly claims that he has frequently found catarrhal conditions of the upper air passages, with and without accompanying middle ear complications, which refuse to clear up until the primary intestinal toxemia has been treated by diet, colon lavage and vaccines, in place of the perfunctory prescription of one or more proprietary purgatives.

Otosclerosis, he believes to be primarily an intestinal toxemia affecting the cortical cells—the much discussed changes in the labyrinthine capsule being in all probability trophic in nature. He believes it is not the otosclerosis that is hereditary, so much as the chronic intestinal toxemia. Gottlieb carried out a series of experiments which showed that the stools of patients whose hearing was becoming progressively worse were toxic to guinea pigs. Examination of the inner ear showed the presence of hemorrhagic lesions in the cochlea, hemorrhages into the nerves, around the nerves and into the dura.

2. The Endocrine System.

This is unquestionably one of the causes of progressive deafness, and an important one. Since dis-

turbed metabolism is best demonstrated by the blood chemistry, the laboratory is clearly an important factor in the early diagnosis of progressive deafness. A blood, sugar and Wassermann should be included.

It has been noted that when metabolic disorder has been found in conjunction with deranged calcium metabolism deafness was progressive, and Kopetsky considers derangement in blood calcium as diagnostic of progressive deafness.

3. Focal Infections.

Such infections may be located in any part of the body; in the teeth, tonsils, sinuses, intestines, gall-bladder, etc. Dr. Gottlieb believes in the possibility of a common etiology for vasomotor rhinitis and progressive deafness and considers it to be due to a toxic absorption from the intestinal tract.

4. Nervous System.

This will frequently be found at the root of distressing tinnitus and diminution in hearing. Tinnitus may also be due to chronic interstitial nephritis, hypertension or arteriosclerosis. Chronic progressive deafness is a local manifestation of a general metabolic disorder, and rarely exists as an isolated entity.

III. Direct Local Treatment

Local treatment resolves itself into attention to the eustachian tube, middle ear and drum.

The eustachian tube is probably in most cases the starting point in deafness and it is here that attention should first be directed. The pathology may be confined to the mouth of the tube, or may be present in the tube itself, mainly at the isthmus. If the tube has become badly inflamed, little can be accomplished by ordinary politzeration or catheterization. The cases that respond best to this form of treatment are certain cases of incipient deafness, recurrent deafness, or deafness following a coryza, or the extension of inflammatory conditions of the nose. Improvement should be noted after treating for about a month. If the audiometer test does not show any definite improvement, it should be discontinued. Some cases will show an improvement under treatment. The procedure most satisfactory is as follows:

A cotton-tipped probe with 4% cocaine is passed along the floor of the nose to the eustachian orifice. This is allowed to remain in place for a few minutes. The waiting period is employed to massage the drum, using the Siegals' otoscope. Following this, the catheter is gently inserted. A flexible catheter is preferable, enabling the curve to be altered to suit each individual case. In the majority of cases the insertion is simple. When any difficulty presents itself the naso-pharyngoscope can be passed into the other nostril and the maneuver accomplished under direct inspection. With the catheter in place only the gentlest inflation should be attempted except in the exceptional cases, where the drum is held down by adhesions which may be freed by forcible inflation. Many of the chronic cases, however, are the result of hypertrophied changes in the eustachian tube, as well as about the orifice, resulting in a diminution of its calibre. The stenosis is most apparent at the isthmus, where the lumen is naturally smaller. A Yankauer wire applicator, cotton tipped, is saturated with a 2% cocaine and adrenaline solution and passed through a eustachian catheter, into the tube and into the middle ear. After leaving it in place a few minutes it is withdrawn and a Dench vaporizer is connected to the catheter and the tube and middle ear filled with a volatile iodine, camphor and menthol solution. Occasionally, where the mucosal turgescence is marked, it is best to follow up the cocaine with another applicator containing a 3% silver nitrate solution. Where the stenosis persists a small olive-tipped bougie is inserted into the tube after immersion in an antiseptic oil such as liquid petrolatum or albolene. This bougie remains in place for about 15 minutes. The size of the bougies are increased until the calibre of the tube is restored. This treatment is followed up by inflating the tube with warm medications. The Dench vaporizer can be used or a few drops of the medication can be inserted into the tube by means of a Holmes syringe. Gentleness in these procedures is of paramount importance.

The best method of treating a relaxed drum is that advocated by Heath of London, of making repeated application of cantharides collodion to the drum. The applications are made daily until inflammation with transudation takes place. Treatments are continued for three or four weeks and resumed after a few months.

Mechanical Devices

There are certain electrical adjuvants which have some value, although it is questionable whether any one of them used alone without direct local treatment can cause any appreciable change in the hearing.

1. Vibrators.

These consist of the Kloman vibrator, the McKennon instrument, the Audotor, and others. The principle of all these instruments is to send vibrations to the drum with a varying degree of rapidity and with an evenness which does not tend to create any harm, although whether they do any good is questionable. A series of cases treated with one of these instruments alone over a period of six months failed to show any appreciable change in hearing acuity on retesting with the audiometer. On a second series, where the local treatment was given in conjunction with the vibrator, improvement in the hearing of some degree was obtained in 19 out of 34 cases. Peculiarly, the patients were inclined to credit this improvement to the vibrator and seemed to have more confidence in this instrument than in the local treatment. It seems worth while to use a vibrator or allied instrument for its definite psychological effect on the patient, although the physician himself should place no great reliance on them. It serves to detract the patient's attention from the local treatment and is particularly valuable in the case of nervous patients, as it can be used in the interim while the patient is waiting with the bougie or tampons in place.

2. Diathermy.

This seems to have a greater value than the vibrators but still of limited therapeutic worth if used alone. It has direct stimulating effect upon deep-seated tissues and probably has some effect on the middle and internal ear. Some of these appliances are rather ingenious arrangements. Hollander and Cottle's and Dr. Pollard's set are two good examples of this type of apparatus.

3. Ultra-violet Ray.

Generated by the water-cooled quartz lamp. This apparently has some effect on hypertrophied nasal conditions and excessive lymphoid tissue in the nasopharynx in the region of the eustachian orifice. The electrode is inserted into this area via the nose or throat.

4. X-Ray and Radium.

Of the same value as the ultra-violet ray. Useful inreducing hypertrophied tissue in the nasopharynx.

5. Acoustic exercise is an old idea modernly developed by Urbantschitsch of Vienna and Goldstein of St. Louis. Constantly repeated stimuli in the form of musical sound waves, it is claimed, can awaken even completely deaf patients to sound impressions. Dormant tone islands in the organ of Corti are stimulated and then broadened in function. Subsequently speech exercises are added in which the pupil is taught to comprehend simple vowel sounds first, then combinations of vowel sound and finally syllables. Urbantschitsch suggested some years ago, that the best way to get deaf to hear was to re-educate the ears with the sound of human voice. Acting on these lines, Zund-Burguet constructed a machine called the Electrophone. By means of this instrument it is possible to reproduce the same kind and number of vibrations as are contained in the whole range of human voices—bass, tenor, contralto, and soprano. It reproduces the sound vibrations of the whole gamut of the human voice and thus gives the requisite physiological stimulus to the ear. It contains three mechanical larynges in which the vocal cords are replaced by vibrating platinum lamellae. It is claimed that in many cases this treatment will be followed by the diminution and even by the disappearance of the feeling of fullness in the head, and tinnitus, and by an improvement in the hearing. Cathart reports remarkable results with its use.

Otologists realize that there is no cure-all for deafness. However, by the careful examination of each patient as to the cause and type of deafness present and with the application of rational local therapy, some improvement or at least relief of some of the more distressing symptoms can be obtained in a great number of cases.

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EDITORIALS

A SURGEON OF THE PAST GENERATION

Taught by the most eminent practitioners, after two years of study he had mastered the medical science of the time. Returning to his native town, he opened an office in a room at his residence. With his equipment, he purchased a good horse and soon required a second one to carry him on his calls by night and day. He spoke with pride of their speed and dependability and delighted in their perfect condition. As only a few of his patients had telephones, most of his calls came by messenger. He attended many women in labor. The maternity hospital was unknown or not yet in good repute, so all of the confinements were attended in the patient's homes.

His operations were done with tact and expedition, with a technique modified by that of the recent pre-anesthetic days. He performed amputations, removed the appendix and drained the gall bladder, but scorned the advice of the radicals who were advocating cholecystectomy. He removed large uterine fibroids and huge ovarian cysts, long cherished by patients skeptical of the benefits of sur-

gery. Cancer was not prevalent and when present often escaped diagnosis without prejudice to the examiner. The pre-operative diagnosis was a matter for serious consideration and often for consultation. Operations were performed to meet definite conditions. Exploratory operations were not deemed advisable nor proper.

The apprentice system of medical education was still in vogue. Students accompanied the surgeon on his daily visits, assisted at operations, administered anesthetics, prepared dressings, sterilized suture material, chose and sterilized instruments, and made chemical and microscopical laboratory examinations. The surgeon gave much of his time to the charity work of the general hospital, but did the most of his private operations in the homes of the patients. Preparation for these operations took considerable time. The students did this work cheerfully, fully remunerated by the constant instruction and oversight of their preceptor. In the operations and confinements attended in homes as compared with hospitals, freedom from the chance of septic infection largely overcame the handicap of operating on the kitchen table.

The surgeon had no office nurse and no secretary. He kept office hours, morning, afternoon and evening, every day in the week. Toward the end of his career, he considered the omission of office hours on Sunday evening but decided that he could not conscientiously neglect his patients to that extent. He did not play golf on Wednesdays nor attend the talking pictures on Thursdays. His work monopolized his interest and provided his pleasure. By reading the latest medical books and magazines, he managed to keep abreast of the times, and by attendance on medical meetings, he maintained an acquaintance with the great men of the profession.

In spite of handicaps, the surgeon's work was remarkably successful. He did not accumulate a great fortune, but at the end of a busy and useful career he left his large family in comfortable circumstances and several of his assistants, as a result of his thorough and practical instruction, well fitted to continue his work.

A STEP IN THE RIGHT DIRECTION

The recent decision of Congress to intrust to doctors the privilege of prescribing alcoholic beverages according to their judgment should meet with the approval of both the medical profession and the laity.

As often happens, when reform movements start rolling they are hard to keep within the bounds of common sense. The worst features of such movements nearly always correct themselves.

The right to prescribe alcohol will be guarded as carefully by doctors as has the right to prescribe other drugs. Surely the prescription of narcotics, far more important drugs to society than alcohol, has not been abused by the profession.

Congress has done well to relinquish to the medical profession its supervision over medicinal spirits. The best interests of society will be faithfully served.

IN *RE* COFFEE

The appearance recently in our national Journal of the advertisement of foods which will take the place of coffee and will assist in breaking up the coffee habit, recalls the fact that there is such a thing as the coffee habit and that there is still a need of propaganda against the drug habit. The medical profession has always been conservative and tolerant. It will stand much and will allow all sorts of abuses until a thing becomes unbearable. It is in matters like this, where the stakes are not large and where the harm is not particularly great, that it keeps silent until it would seem that the time has come to call a halt. It has been said that tea, coffee, alcohol and tobacco agree with no one. There may be a tolerance acquired to these stimulating things, but they do their work just the same and all to the complexity of metabolism and the toxic chemistry of the body. All physicians who have to do with nutrition problems know that there are many who are susceptible to caffeine and that strong coffee is one of the most powerful and long lasting of heart stimulants. Its effect upon the nervous system is also well known and it is a frequent cause of insomnia. It takes but little experimenting upon one's patients to see the increase of the heart's action and the rise in blood pressure which often attend its exhibition. Yet we often hear blared by the radio the false statement that five or six cups of coffee a day are beneficial and that there is no harm whatever in freshly ground coffee. Recently a noted health official was hired to certify that coffee was in no way injurious. It is, of course, possible to obtain evidence pro and con concerning almost everything

from salvation to shoestrings, and certainly it is time that the medical profession educated its public in the truth of what is certainly an American drug habit. At all events, the experiment of abstinence from coffee is worth being tried, and it may be soon noted how seldom thereafter one has to take "gas tablets" and how soon a troublesome insomnia will be cured. Many a devout zealot would scorn to take a glass of beer rich in lupulin, but would stupefy himself with food, tobacco and coffee at the expense of his nerves, his blood pressure and his waistline.

Attention has already been directed in this column to the wasteful and absurd policy on the part of the government regarding confiscated liquors and alcohol. Similar criticism should be visited upon its methods of destroying seized narcotics. The cost of morphine and other opium derivatives is too high and adds materially to the cost of medical care now being so rigidly investigated and so severely criticized. We rejoice in the sight of hundreds of thousands of dollars worth of morphine and heroin being burned, but the thought of appalling waste soon obtains. The bales of opium pipes we can do without, but it must be assumed that the destroyed drugs were of a considerable degree of purity, else they would not have to be destroyed, and that the cost of refining would not be great. We, as shareholders in a magnificent government which we stoutly uphold by taxes and by loyalty, have a right to know what the government profits from the supervision of alcohol and narcotics, why we have to pay so much for the few narcotics we do use, and why we have to pay five or six dollars a gallon for alcohol which can be made and sold at a profit for probably ninety cents.

OBITUARY

DR. HENRY A. COOKE

Dr. Henry A. Cooke, a member of the Providence Medical Association since 1899, died of pneumonia, in Providence on March 17, 1933, after three years of invalidism.

He was born in 1866 in Groton, Massachusetts, and, after his school years, worked his way through Amherst College, often by menial labor, receiving the A.B. degree in 1889. His courage and determination stood out strongly in these student days, as in his later life, for though an able athlete and well equipped for social prominence in college, his limited means denied him such diversions and he cheerfully threw them over, thinking only of preparation for his life's work ahead.

After graduating at Amherst, he taught for three years at Mohegan Lake Military School and so accumulated funds for the Medical Course at Harvard, where he received his M.D. in 1896. His record at the Harvard Medical School was so good as to give him a two years Internship in Medicine at the Massachusetts General Hospital. Beginning general work in Providence in 1899, he soon acquired a good practice, which by 1906 had become a large and important one. In that year he developed pulmonary tuberculosis. The man's brave and cheerful character was never better shown than at that time when, asked how long he expected to stay at Saranac, he replied, "Till they tell me I'm well; one to ten years, it doesn't matter."

In two years time he was discharged with the disease arrested and returned to active work, which he followed vigorously and usefully for the following twenty-two years, till in 1930 he retired on account of ill health. For twenty years he was a Visiting Physician to the Rhode Island Hospital.

Dr. Cooke was a man of the highest attainments, whose opinion was always valued by his associates, and yet withal he possessed a modesty so pronounced as to be an outstanding characteristic. In spite of his wide and accurate knowledge, he was always open-minded, ready to discuss with his colleagues in a friendly way, never dogmatic and ever willing to be convinced of another's opinion, should it seem the more logical.

He was a lover of books, of his profession, of his patients, who greatly loved him and, above all, of the great out of doors: birds, trees and flowers. His garden at Peterboro, N. H., was to him a veritable Eden of pleasure and rest during the last years of his life.

We who knew Harry Cooke well, say of him and ask you who knew him but little, to think of him as one of our fellows, who thought keenly and effectively, who acted kindly and honorably, who lived highly and bravely, who served his profession and his public unselfishly; the kind of Doctor the world needs and of which this Association is justly proud.

Be it Resolved: That this minute be spread upon the records of the Providence Medical Association and a copy sent, with an expression of sympathy, to his family.

HALSEY DEWOLF, M.D.
FRANK T. FULTON, M.D.

SOCIETIES

The Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. James W. Leech, April 3, 1933, at 9:50 P. M. The records of the last meeting were read and approved. The following were elected to membership: John A. Hayward, William M. Muncy, Mark Rittner, Harold Rogell. The first three were introduced to the meeting.

Dr. Vincent J. Oddo presented a case of granuloma inguinale, a disease usually found in colored people in the tropics. This was in a white man at first thought to have gonorrhea and syphilis. Encapulated gram negative intra cellular organisms characteristic of granuloma inguinale were found. Antimony and potassium tartrate intravenously is a specific.

Dr. Frank T. Fulton read an obituary on Dr. Henry A. Cooke. It was voted to have it spread upon the records and a copy sent to his family.

A symposium on diabetes was presented by the Staff of the Diabetic Clinic of the Rhode Island Hospital. Dr. Herman A. Lawson spoke first on diet. The last few years have shown numerous changes in treatment in this very common disease; diet is of first importance. Diets approaching normal are now attempted. The Rhode Island Hospital diets now keep the carbohydrates well above the fats, which are low, thus keeping the calories low. These diets allow fruit, vegetables, bread, meat and other interesting things. Acidosis is less apt to occur, it is just as easy to keep sugar free, arterio sclerosis is less apt to develop and the diet is not expensive. It is necessary in order to treat diabetes well to know the value of foods and prescribe exact diets. Dr. Louis I. Kramer spoke on Insulin. Since this was discovered in 1921-22 it has saved great numbers of lives, particularly in children. The unit is standard but the concentration varies in the different types of insulin. Give it subcutaneously and change the site. Preferably one-half hour before meals. Severe cases require three or possibly four doses daily. In their clinic a much smaller percentage of patients are now requiring insulin. Intercurrent infections, mental strain, untreated lues require more insulin. Every diabetic should have training in the use of insulin. They may need it. One hundred grams of carbohydrate without showing sugar is the low limit for giving insulin. Proper aseptic care is of great importance in injections. Patients should always carry sweets for cases of hyper-insulinism. Insulin is contraindicated in coronary occlusion or angina. Dr. Alex M. Burgess spoke on Coma. It is still a present problem and the normal end of untreated diabetes. The chief cause is infection. In differentiating insulin shock from diabetic coma the former comes on rapidly, even in seconds, the skin is moist, the pulse bounding, the respiration normal, and the patient confused with blurred vision and may go into convulsions. Coma does not come suddenly. The skin is dry, the pulse weak and the breathing labored. Administration of sweets will relieve the former very quickly. If in doubt give glucose intravenously with insulin. In children the so-called acute abdomen can be confused with impending coma. Treat the coma and if symptoms do not disappear then treat the abdominal condition. In coma the treatment must be quick. Ketosis or acidosis demands insulin, sometimes glucose and fluids as dehydration is important. Heat loss is combated by heaters, blankets and hot drinks. Gastric dilatation frequently occurs and the lavage with the Levine tube and also enemas should be used. Renal block may cause nephritic coma to be suspected. Concentrated saline or glucose intravenously should be used. Vigor, promptness and sagacity usually control coma but the patient is on thin ice.

Presentation of cases by Dr. Rocco Abbate included a case with tuberculosis, a case of coma treated by a brother, exceedingly severe case with four insulins daily, a case with numerous insulin shocks brought on by exercise, a case of retinitis and a case of a child 13 with severe diabetes. The papers were discussed by Drs. Messinger, W. Streker, Gray, Migliaccio, Langdon, Nichols, Brothers, Lawson, Kramer and Abbate.

The President announced a meeting of the Rhode Island Society of Neurology and Psychiatry Monday, April 10.

The meeting adjourned at 10:55 P. M.

Attendance 160. Collation was served.

Respectfully submitted,

Peter Pineo Chase, *Secretary*

R. I. Ophthalmological and Otological Society

A regular meeting was held at R. I. Medical Library on April 27th, 1933, at 8:30 P. M. Subjects: 1. Rhinological Treatment of Asthma, Dr. J. Fishbein; 2. Sinus Disease in Children, Dr. Jeffrey J. Walsh; 3. Relationship of Gastric and Pulmonary Symptomatology to Sinus Disease in Children, Dr. B. Feinberg.

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ORIGINAL ARTICLES

A REVIEW OF RECENT SCARLET FEVER LITERATURE*

By L. J. Smith, M.D.
Superintendent of Health
City of Warwick

A marked degree of uncertainty exists in the minds of those who are responsible for the recent literature on several aspects of Scarlet Fever. These uncertainties particularly exist as to the etiology, the prophylaxis, the specific treatments, the criteria for release and the cause of marked change in the virulence of the disease.

We shall discuss these controversial aspects in the order named:

Etiology

It is generally accepted that some strain of the Hemolytic Streptococcus is the offending organism, but laboratory methods for the isolation of this particular strain have not yet been perfected. At least the methods have not been confirmed and accepted by a majority of the investigators. Since the announcement by the Doctors Dick that they had isolated the specific organism responsible for Scarlet Fever the research workers and clinicians have been constantly at work in an effort to confirm or reject the findings of the Dicks. These efforts have left us in a state of uncertainty and some confusion as to the etiology but also as to the prophylaxis, treatment and criteria for release of quarantine.

Prophylaxis

The results of the findings by Doctors Dick led them to the conclusion that Scarlet Fever could be controlled on the same basis as Diphtheria is controlled. Hence they produced a skin test similar to the Schick Test. Then a serum to produce permanent immunity and finally a serum for the treatment of the disease. These discoveries were received by the public and many of the medical profession with great enthusiasm, but unfortunately not all their claims proved to be true. Many practical obstacles were met with, some of which have not yet been overcome. Experience and observation have shown the Dick Skin Test to be fairly accurate, but the serum reactions, following efforts to immunize individuals and the treatment of cases, have often been worse than the disease itself. For this reason immunization against Scarlet Fever has been limited in its scope to isolated groups in institutions with varying results reported. In fact, the scope of this work has been so limited that no definite conclusions can be formed as to its value in reducing the number of cases. Public Health officials have been and are still doubtful of the expediency of promoting a campaign of immunization against Scarlet Fever as has been done with Diphtheria immunization. The reasons are: 1—A lack of confirmatory evidence of its efficacy. 2—A fear that the unfavorable and often severe reactions some times encountered would react unfavorably against the use of well known and safe preventives used to protect against such diseases as Smallpox, Diphtheria, Tetanus, Typhoid Fever, etc. More recently blood serum from persons who have recovered from Scarlet Fever has been used to produce temporary immunity in exposed contacts. In 1930, Dr. F. M. Meadar, Director of Medical Service, Detroit Department of Health, made a controlled study of the use of immune serum, in which he announced the following conclusions.

1. "Four hundred and fifty (450) contacts with Scarlet Fever have been given 7.5 cc. each of pooled blood serum from donors who have had Scarlet Fever within one year or a little later. The serum has been given the contact within six months from the time it was drawn. A study of the subsequent history of the contacts shows that 2.9 per cent. developed Scarlet Fever, while 12.8 per cent. developed Scarlet Fever in a similar group of contacts who did not receive the serum. Apparently about 85 per cent. were protected from developing Scarlet Fever."

2. Immunity apparently does not last longer than three or four weeks.

3. The prophylaxis is particularly valuable for young children who have been recently exposed to

*Read before the Rhode Island Medical Society, March 2, 1933.

Scarlet Fever. It is also recommended for the infirm.

4. Prophylaxis has been found useful in checking outbreaks of Scarlet Fever in hospitals and other institutions.

A similar procedure has been successfully employed in the protection of young children against Measles. With a very high death rate from both Scarlet Fever and Measles in children under five years old, is it not our duty to use this means of protection more frequently than we have in the past?

Specific Treatments

A careful study of the effects of Scarlet Fever Streptococcus Anti-Toxin in the treatment of Scarlet Fever was made in 1931 by a surgeon of the Public Health Service in cooperation with two pediatricians in a Cincinnati hospital and the results reported in Public Health Reports, volume 46, number 51, December 18, 1931, shows the following observations:

One hundred and ninety-six patients were used one half for control and the other half who received special serum treatment.

Effects on the eruptions shows the average period in control cases was 6.8 days, while those receiving serum treatment was only 4.3 days.

Effects on disquamation—no difference as to time but some difference as to the character of disquamation.

Effects on temperature—no material difference was noted.

Effect on complication—Here we find a somewhat marked difference in favor of those receiving Anti-Toxin. However, one paragraph of their Report has this to say: "The clinical data accumulated as a result of our studies fail to build up an irrefutable case for the use of Scarlet Fever Streptococcus Anti-Toxin in the treatment of Scarlet Fever. However, a study of the data presented shows that the Anti-Toxin has a specific action. It may well be that failure to obtain complete and constant results was due to inadequate dosage, delayed administration, or to an improper mode of injection."

Dr. J. E. Gordon, Medical Director of the Division of Epidemiology, Detroit Department of Health, has recently made a most exhaustive study of Scarlet Fever. In the American Medical Journal issue of January 14, 1933, he discusses the value of Immuno-transfusion in certain types of the disease. Out of a total of 13,003 cases of Scarlet Fever treated since 1927, only 246 were selected and treated by this method. The indications for this type of treatment were early septic Scarlet Fever and Septicema associated with late complications. These patients were all extremely ill and many of them had a hopeless outlook. Out of the 246 cases treated by Immuno-transfusion, 47 died (19.1 per 100 cases).

Dr. Gordon states that the results in the treatment of Toxic Scarlet Fever are less favorable than with Scarlet Fever Streptococcus Anti-Toxin. He does not advocate Immuno-transfusion in all cases of Scarlet Fever, but believes all forms of treatment,—Immune Serum, Scarlet Fever Streptococcus Anti-Toxin and Symptomatic are useful in selected cases.

Criteria for Release of Isolation

A disease manifesting such varying intensity pathologically and clinically, we naturally expect varying opinions as to length of time isolation is necessary. Then we find that the likelihood of communicating Scarlet Fever to others is dependent on season, climate, age, the nature of the acute stage of the disease, its subsequent course and the complications that often occur.

The time limit of twenty-one to fifty-six days adopted by different municipalities and States is not altogether inconsistent, because we note that climate does have some effect on communicability. However, it is inconsistent to see two adjoining Towns, one with a twenty-eight days and the other with a forty-two days isolation period. This is actually true in one of our neighboring States. The element of time alone as a criterion for the release of Scarlet Fever is very unsatisfactory to the patient, his family, the attending physician and the quarantine officer. But for a lack of any other proven method or procedure, Boards of Health have been compelled to rely on the time element. However, it is now believed by those who have made a special study of this subject that a combination of time, negative bacteriological and clinical findings offer the safest criteria for release of Scarlet Fever. If the culture is negative for hemolytic streptococci, then we feel that the case is safe to release, but if the culture is positive for hemolytic streptococci, how is it possible to say that it is truly Scarlet Fever hemolytic streptococci? Bacteriologists are not yet able to tell us. We know

that hemolytic streptococci are often found in apparently normal noses and throats. In Diphtheria the bacteriologist is able to tell us whether we are dealing with a virulent or non-virulent organism. So you see by depending on bacteriological findings alone, we might keep many patients in isolation unjustly. In order to avoid this error it is necessary to determine the clinical and pathological condition of the patient. Here again Gordon has contributed valuable material from his careful and extensive studies of the complications of Scarlet Fever. Under the title: "Epidemiology of Scarlet Fever—a Clinical Approach," under date of February 13, 1932, in the American Medical Journal, you will find a full discussion of this subject by Dr. Gordon. In this treatise he points out four pathological conditions which must be taken into consideration before a patient can be safely released. They are as stated in tabular form with the number of cases in each group:

	Case	No.	Percent.
1. Suppurative Otitis Media	145	4	2.8
2. Cervical Lymphadenitis	200	16	6.2
3. Rhinitis and Sinusitis	437	28	6.4
4. Multiple Complications	294	21	7.1
Totals	1176	69	6.0

It will be observed that the infecting case rate for the complication, Rhinitis and Sinusitis is greater than for any other single complication with Cervical Adenitis running a close second. Contrary to general opinion Suppurative Otitis Media is scarcely more infectious than is patients released after simple Scarlet Fever. Of course, patients having a combination of two or more of these complications show a still higher infecting case rate. Dr. Gordon makes the following classification of the Rhino-Sinusitis discharges: active purulent, sero-purulent, crusting, pus on turbinates and simple coryza. In the order named these nasal discharges show infection rates ranging from 14.7 high to 2.5 low per cent. This demonstrates the practical value of careful clinical classification before releasing our Scarlet Fever cases. A careful consideration of these three criteria—time, bacterial findings, along with the clinical and pathological conditions—will do much to increase the safety on release of the cases. The total number of cases with complications after a twenty-eight days isolation is small and would not involve any great amount of extra work on the part of the attending physicians and laboratory technicians, to determine more accurately the condition of each patient before release. In this small group of cases are to be found the greatest source of infection. It is generally conceded by most authorities that it is safer to release a simple uncomplicated case of Scarlet Fever at the end of twenty-one days than it is to release other cases with certain complications at the end of twenty-eight, forty-two or even fifty-six days.

Change in the Virulence of Scarlet Fever

Rosenau has this to say in regard to the change in virulence of Scarlet Fever: "One of the most striking phenomena in epidemiology is the progressive change in the character of Scarlet Fever. There has been no noticeable change in its incidence, but it has lost much of its virulence. This is the general experience everywhere. The figures from Providence, Rhode Island, are representative: From a mean mortality of 40 per 100,000 for the decade, 1875-1884, the rate had fallen to *two* per 100,000 for the decade, 1915-1924. For the past forty years the case fatality has shown a negative trend of 5 per cent. per year. During this same period the case fatality rates have varied greatly in different epidemics, ranging from 0.86 to 21 per cent. Wide excursions from year to year are characteristic of Scarlet Fever epidemics in all countries, but the downward trend is general."

The mortality rate for the State of Rhode Island is now about 1.0 per 100,000.

Since the incidence of Scarlet Fever has not been materially reduced and yet the death rate has been tremendously reduced, shows definitely that there has been a change in the virulence of Scarlet Fever. We may ask, why this change? No one has been able to answer this question satisfactorily. Two theories have been advanced: First, *mass immunity*, by which is meant that the population as a whole living almost constantly in contact with cases and carriers have built up a partial immunity against the disease. Second, that the organism causing the disease is gradually losing its virulence.

It may well be that a combination of these two factors is responsible.

Mass immunity against Diphtheria has been demonstrated by the application of the Schick Test in densely populated areas as compared with sparsely populated areas, in which it is shown that the densely populated areas have a higher degree of immunity than the sparsely populated areas.

The second theory needs laboratory confirmation before it can be accepted as a fact.

What is the significance of this change in virulence? We have shown that it has caused a decided reduction in the death rate from Scarlet Fever, but practically no change in the incidence of the disease. This means that we are having a very large number of mild or atypical cases, which do not manifest all the cardinal symptoms. Diagnosis, therefore, is becoming more and more difficult. The difficulty is so great, we believe many cases go unrecognized and thereby become the greatest source of infection and spread of the disease. It is the concensus of opinion, many cases of Scarlet Fever never manifest the one diagnostic point, Erythema, which we usually depend on for positive diagnosis. Many examples of this might be pointed out. Here is one which the writer observed in consultation with a physician attending a family consisting of father, mother and three children, who were involved. The youngest child, three years old, came down with a disease which had all the symptoms and signs of Scarlet Fever, except the rash. Ten days later the mother had a very severe sore throat. Two days later the eleven year old son came down with similar symptoms as the first case. One day later the nine year old son came down with a typical case of Scarlet Fever with a definite punctate Scarlet rash. According to a written record kept by the mother, the two sons nine and eleven years old, had definite cases of Scarlet Fever in 1927. If the last case had not manifested the rash, the three other cases no doubt would have gone unrecognized. It is easy to suspect any case of sore throat with sudden onset, nausea and vomiting and quick rise in temperature as being caused by Scarlet Fever hemolytic streptococcus, but it is another matter to say positively it is a true case of Scarlet Fever. The history of exposure or even the prevalence of Scarlet Fever in the community should cause us to have a throat culture taken and if positive for hemolytic streptococci, the case should be isolated and await further developments. The case should be seen often enough to observe any rash that might appear. It may be of fleeting nature and found only in the skin folds. Effective control of any communicable disease depends on early accurate diagnosis.

Conclusions

The uncertainty and confusion concerning certain aspects of Scarlet Fever discussed in this paper need clarifying before safe and sound measures can be adopted for effective control of the disease. The underlying cause of all this uncertainty and confusion rests on our inability to establish beyond a shadow of doubt the causative agent or organism responsible for the disease. Further study and research are necessary to establish and correlate the facts already known. The medical profession as a whole can and should contribute data for study to help solve these problems.

PROGRESS TOWARD VOLUNTARY SEX DETERMINATION*

By Frank S. Hale, M.D.
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The advent of the Ascheim-Zondeck Test has stimulated remarkable research activity in the field of the female sex hormones. Thus our ideas of the menstrual cycle, the secretory action of the ovary and allied glands, and the stimulation of lactation have been greatly changed, and logically, our present glandular therapy will be radically altered. With a definite means of determining the *presence* of pregnancy, our next line of thought would be: can one determine the sex before birth? In natural sequence, we further would question—can sex not only be determined but also voluntarily controlled?

In the following resume, I have endeavored to recount the work, observations, and conclusions of a few of the outstanding experimentors in these fields. All of these do not agree; many facts and theories may appear to be antagonistic; but on the whole, there is very definite progress.

The writer submits these findings not as a fellow research worker but only as an interested clinician. To adequately check many of these reactions would require an authoritative embryologist, serologist, and pathologist combined. However, widespread interest has been aroused, much work has been done, and definite progress accomplished. A recount of these findings may furnish us with some standards.

At the St. Joseph's Hospital, we have been particularly interested in the A. Z. test. Early in 1932, Dr. Castello presented at a staff meeting a very excellent paper describing the technique as used at the New York Medical Center. This re-

*Read before the Providence Medical Association, February 6, 1933.

quires no repetition but as this test is the basis of almost all animal experimentation in this field, I believe a description of some of its variations will not be amiss.

For example, in one of my private cases with the question of ectopic pregnancy, the ovaries of the rabbit tested were apparently diseased and no definite report could be made. I checked, using mice as the test animals, and there was a very clear-cut *negative* reaction. Thus for real accuracy, when using rabbits as the test animal, even if these rabbits have been segregated the full month, their ovaries may be useless for the A. Z. reaction due to previous pathology. This could be obviated by first sectioning the rabbits, checking the normalcy of the ovaries, allowing time for recovery, and using only approved animals for the A. Z. test. This method would require the expenditure of considerable labor. As a routine, where the element of time is not important, mice seem to make the more satisfactory test animals.

Last December, another discrepancy occurred. The patient was clinically pregnant but the size of the uterus did not correspond to the omitted menses. No foetal movements were felt, no foetal heart or placental suffle could be heard, the A. Z. test was negative. While Dr. Coleman and I were examining this patient then apparently in active labor, she expelled a small macerated foetus together with a detached placenta. This lack of placental attachment accounts for the negative A. Z. test. The Truesdale clinic reported a similar instance at the December meeting. Their case had caused considerable controversy among the surgical, obstetrical and pathological departments until the removal of a macerated foetus finally settled the question. These discrepancies are cited not as any disparagement of the value of the A. Z. reaction but to emphasize the necessity of a thorough clinical study in addition to the Ascheim-Zondeck test.

Dr. George Wyeth, an American serologist, is quite elaborately working out blood serum reactions especially in regard to sex tests. These tests are largely compliment fixation reactions. Blood from an individual who has attained puberty can be definitely classified as coming from a male or female. This is done by using ovarian or testicular antigens. The test should have much medical-legal value. When these reactions were performed with the blood serum of pregnant women, he finds an abundance of anterior pituitary, and a strong reaction with corpus luteum. Most of these bloods were taken in mid and late pregnancy. To date, he has not determined the earliest appearance in pregnancy of these reactions, and he has found no difference in the reaction whether the woman be carrying a male or a female foetus. However, Wyeth's tests have been carried out in cases of carcinoma where he finds the constant presence of anterior pituitary antibodies; their absence in syphilis and T. B., and very weakly positive in benign tumors. He, therefore, suggests, although this is aside from our subject, that cancer may be due to a disease or disturbance of the anterior pituitary function. Wyeth's report is only preliminary. He reports no reactions where a hydatid mole was present.

Sharlit and Loiberblatt, working in the Harriman Research Laboratory at the Roosevelt Hospital, find the classical Manoilous chemical test for sex determination attractive and probably eventually possible. With them, however, urine seems to react as well as blood, and neither very accurately. Their careful check work seems to disprove the sex determining value of the Manoilous reaction. Here again that a woman be pregnant with either male or female foetus, seems to make no definite difference with the reaction. A chemical sex determination test may be evolved later.

Most of us read the preliminary report of Dorn and Sugarman in the November A. M. A., concerning their male rabbit tests for determining the sex of the unborn foetus. Briefly, their test consists in injecting 10 cc. of the morning urine of a pregnant woman into the ear vein of a young male rabbit, just at puberty, whose testes have descended into the inguinal canal but that have not advanced into the scrotum. In 48 hours, the testes are excised, examined, and in some cases sectioned. If the foetus be a male, no changes from the usual histology are found. Should the testes be congested and engorged together with microscopic evidence of precocity of the testes for that given stage of development, the diagnosis is a female foetus. This reaction does not give the definite picture found in the A. Z. test. Male rabbits vary greatly in their age of puberty. The usual time is three months, but this is by no means constant. Of course, the larger breeds are better as experimental animals as the testes are more easily palpated in the canal, and when excised these larger testes show the reaction more clearly. The breed of the rabbit, too, is quite a considerable

factor. Dorn and Sugarman did not bring out these points. The observation of many normal testes is required to enable one to give a reasonably accurate opinion, and even then many of the testes may require sectioning and microscopic study. Dorn and Sugarman successfully diagnosed 80 of 85 cases in their preliminary report. In twin pregnancies, should the twins be of the homologus type, it would simply accentuate the reactions. Should the twins be identical, the reactions would be so nullified as to give no accurate report. No specific report has been given to date on reactions in any great number of cases of twins. This test requires quite wide histological knowledge of rabbits' testes and also, the ability to make standard or rapidly fixed sections for microscopic study. Reports from different clinics on this test vary. Most of the mistaken diagnoses are made early in their series before sufficient comparative knowledge of the testes has been acquired. This test picture will probably never be as clear cut as the A. Z. test but I hope that a valuable diagnostic method for determining the sex of the unborn foetus at least in mid and later pregnancies has been discovered. Just why the presence of a female foetus so stimulates the rabbit's testes as shown in this reaction has not been explained.

Dr. Box of the Hospital San Carlos, Madrid, has written very convincingly on sex determination from the standpoint of the chromosomes. Of necessity, many of these deductions are based on theory. First, he classified the published percentage of males to females by birth records; England having 103.6 males per 100 females; Spain having 108.8 males per 100 females; and other countries ranging between these figures. An even higher percentage of males was indicated in records of still births and aborted foeti. In England this was 125 males to 100 females; in Spain 162 males to 100 females. Box was not satisfied and realizing that mistakes as to the actual sex of an early foetus were quite common, he autopsied a large series of aborted foeti. In these, by microscopic study, the sex was absolutely determined and there was very little difference in the percentages of sex. He concluded that a national yearly record where the sex of the still births and abortions were properly diagnosed, would show nearly equal proportions of male and female births.

He next investigated the German birth records during the period of the World War, taking only the birth records of soldiers' wives where a systematic check had been made showing the exact time of the menstrual cycle, and when the husband had returned home on leave. The resulting statistics are as follows:

Coitus 1 - 9 days following menses—90 boys to 100 girls
Coitus 10 - 14 days following menses—equal proportion boys and girls
Coitus 15 - 22 days following menses—100 boys to 90 girls

and finally, when coitus occurred just before or with the onset of menstruation, the resulting foetus had practically always been a male. The family life of these wartime individuals was far from normal. Pregnancy was greatly encouraged especially in Germany, and the fact that a woman was menstruating did not interfere with coitus. These findings, however, accounted to Dr. Box for the higher male proportion—i. e. 108 to 100 occurring in the Spanish records, giving for his reasons the marked increased libido just before menstruation noted in the women of his race and climate.

By the authorities of Montgomery, Wilson, Novak, Painter, and Winiwarten, Box states that the male cell is the sex determining factor. In simple form, his theory is as follows:

In the male cell, the chromosomes either contain or have a special chromosome which acts as an enzyme or activator, which he calls "X." When this X is present, the impregnated ovum always produces males. If this quality X is altered or destroyed, the sperm cell may yet consummate impregnation but a female foetus will develop. This statement is highly theoretical, and is backed up by very little microscopic proof.

There has been considerable controversy about the actual number of chromosomes occurring in the human sperm. The stated number ranges from 22 - 64. One of the latest authorities, Dr. Painter of Austin, has placed 48 chromosomes for the ovum and 47 for the spermatozoa. This number is now accepted by most of the investigators as the standard for the human race. That the sex factor is one separate chromosome or that it is contained in all the chromosomes is not agreed upon. Painter has carefully studied these cells in their various phases of mitosis. Thus, according to the theory of Box, if the X factor is retained, the result will be a male foetus. However, there seems to be other factors entering into this result—notably, the acidity of the vaginal secretions. The relative amount of this acidity normally varies with the

given period of the menstrual cycle, being strongest just preceding menstruation and weakest just following. Then again, it is built up through the rest period to the strongest point again during premenstruation. Thus a certain degree of acidity seems to be required for the spermatozoa to retain its X enzyme and produce males—i.e. according to Dr. Box's theory, and apparently substantiated by the War birth statistics of Germany, which were compiled by Siegel and Levy.

Unterberger, although not present at the Internation Genetic Congress held in New York last summer, reported his results in voluntary sex determination. This received a great amount of publicity. Much of his work was done with cows. This is known as Unterberger's soda-bicarbonate and lactic acid theory of voluntary birth control. His technique consisted in strongly alkalinizing the vagina just before coitus with bicarbonate of soda. He recorded in 53 cases that were either nonparous or had always borne female children, that as he states it, by simply bedaubing the penis with bicarbonate of soda just before coitus, the entire 53 cases gave birth to male children. Unterberger also suggested a routine diet to precede and follow coitus. If males were desired, large quantities of bicarbonate of soda should be ingested—if females, a large amount of lactic acid obtained by sour or by butter milk was included in the diet. As Unterberger's work apparently flatly contradicts Dr. Box's acid theory, the latter began immediately a check series, using the common rabbit as the easiest available experimental animal. The rabbit has this advantage—that it only ovulates when stimulated by coitus—also, its period of pregnancy is quite short, being approximately one month. However, there is *this* disadvantage:—several young are the product of each pregnancy whereas Unterberger had used cows and the human species wherein a single foetus is the usual result. Merlet of Berlin, observing the results of 2,353 rabbit pregnancies, recorded a slightly greater percentage of males—i.e. 103 to 100 females. Dr. Box injected into the rabbit's vagina just before coitus an alkalinizing agent. The sex of the young rabbits can be determined about a week after birth. He used a small series, only 19 rabbit pregnancies being thus treated. His result was 54% males to 46% females. True, this was not a large series and perhaps a slight increase in the percentage of males resulted. But there was no 100% males as in Unterberger's test, and Box is still holding to his acid theory. He suggests, however, that the excess alkalinization with soda bicarbonate used by Unterberger may have so combined with the normal vaginal lactic acid as to form carbonic acid thus actually *increasing* the acidity of the vaginal secretion. That being the case, the acid theory still holds and both observers are agreed.

Several workers in this field of research—notably Wilson and Saltz, do not entirely accept the chromosome theory as being complete. They suggest that other influences not now accounted for play a very important part. For example, that the action of other glands of internal secretion may also influence the final determination of sex.

It has been noted that poorly nourished mothers more frequently reproduce females, and there has been advanced no particular reason for this. Excess acidity of the vaginal secretions for a long time have been considered as having a marked inhibitory influence on impregnation by chemically injuring the semen. Several of us may have advised an alkaline douche preceding coitus to lessen the acidity and favor prengnacy. When pregnancy did result after this treatment, no particular sex predominated. Then again, in artificial impregnation by the Mears tube method, where the semen comes in no contact with the vagina, the result will be either boys or girls.

The Talmud says "that in order to bring forth a son, it is necessary that the woman ardently desire her husband and to bear daughters, the husband must violently desire his wife and better, that he surprise her unexpectedly."

The idea that one ovary produces boys and the other girls respectively is of course disproven by cases of women having had one ovary excised and later producing children of both sexes.

To give a complete resume of all the research and folklore on the subject of voluntary sex determination could hardly be encompassed in this paper. It has been my purpose to cite only recent findings in this field—one in serology, another in chemistry, one with animal experimentation, and finally, the most recent additions to the chromosome theory. I have undoubtedly omitted mention of several important workers in these fields.

Conclusions

1. The Ascheim-Zondeck test has given us a very valuable and early means of determining the presence of pregnancy.

2. Serological tests for pregnancy have more or less beeen developed. These may attain the accuracy of the A. Z. test. Their technique, however, is more exacting and more difficult.

3. Should the claims of Dorn and Sugarman be verified and substantiated, a reaction for the determination of the sex of the foetus in at least the later part and in single pregnancies will have been developed.

4. We can hardly accept unreservedly the claims for voluntary sex determination as put forth by either Box or Unterberger until much further research has been done.

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EDITORIALS

MORE MATERNITY STATISTICS

Apropos of recent comment in these columns, concerning a short editorial which appeared not long ago in a lay journal of wide circulation, it does not seem amiss to speak of the remarkably good statistics published in the annual report of the Providence Lying-In Hospital for the year 1931. There is every reason to believe that the report for 1932, soon to be available, will compare favorably with that of the previous year.

First of all, the figures, which have been set forth, concerning the mortality of childbirth in hospitals, as compared with that of childbirth in the home, are concerned with the results obtained in general hospitals, where from the nature of the institutions sorts of illnesses, with perhaps the exception of the commoner contagious diseases, are cared for under one roof. Much better results are obtained in hospitals where the sole objective of the institution is the care of late gestation and delivery, and the out-door supervision of early pregnancy. The difference between the types of hospitals apparently has a very definite effect upon the results. This fact alone bears out the reasoning used—long before adequate microscopic study was

available—by Semmelweiss in Europe and Oliver Wendell Holmes in this country. The physician might well explain to his patients, as occasion arises, that the dangers of childbirth are far less in a modern maternity hospital, than generalized statistics would lead them to believe; and in so doing he need not use the trite reference to the veracity of statisticians.

The record of the Providence Lying-In Hospital is excellent. It shows a maternal mortality, which is, generally speaking, only a quarter of one per centum; and, be it remembered, these figures are based upon thousands of cases. It is a truly wonderful tribute to the physicians who so willingly—and generally without remuneration—serve these suffering but happily expectant patients, to the nursing staff, where patience still remains a cardinal virtue, and to the kind donors who made the physical equipment possible. Such a record may be heralded with the utmost pride, when one reads the quoted sentence, "There is no question that delivery in the general hospital carries a much higher danger of contagion than delivery in the home." The statement is undoubtedly true, but it should be borne in mind that it refers directly to general hospitals. However, it is fair to add: the figures on maternal mortality for Providence are one-tenth of one per centum better than the country at large, and, the figures for our local lying-in hospital are more than twice as good as those for the whole city. The dissemination of such knowledge would add to the peace of mind of the potential mother and reflect just credit upon the profession, at a time when, in the eyes of the lay public, it should do good.

To those of the profession, who labor in obstetrical work, that is done in the wards of a general hospital, the way is clear: "Cleanliness is next to godliness."

KLEINE KLINISCHE ZOLLVEREIN

"Never refer a patient to Doctor X," a friend counselled us recently, "for if you do that patient will simply drop out of existence as far as you are concerned." This observation was not so much a condemnation of the doctor as of the informal organization of which he is perhaps almost unconsciously a member. It was not so much an arraignment of the organization, either, as of the system under which that organization operates—the system of medical cliques with which the profession is riddled.

The cause of our friend's irritation was not far to seek. He, a surgeon, had referred a patient to X for management of some medical condition. Later he had learned through devious channels that this same patient had been operated upon by another surgeon, a member of the coterie to which X belongs. Naturally the experience rankled. But it was not unique. We have all had similar ones. There are hundreds of such combines as that to which X belongs in every sizeable community. Any patient, by whomever referred, coming to any member of such a group is passed on like a human medicine ball from one specialist in the clique to another, as far as his symptoms hold out, and seldom indeed does he return to the practitioner who referred him unless that individual chances to be allied with the same group. The existence of such associations is inevitable as long as there is a mercenary element in our allegedly altruistic profession. And since, with the passing of the centuries, human nature appears to be essentially unchanged, there probably always will be such an element.

There is nothing new in these observations. They are every day topics of conversation among medical men. But what to do about it? Frankly, we have no answer for this question. If there are those among us to whom the tenets of medical ethics, (which reduced to their simplest terms are merely the application of the golden rule to our relations with our patients and with one another) are too complicated for comprehension or too arduous for application, their case is indeed hopeless.

There are just two questions which a physician in alliance with such a group must face: Is it to the best advantage of the patient? Does it serve the best interests of the medical profession?—— We think not.

A NOBLER EXPERIMENT

Recently a new method of admission to the free clinics has been adopted at the Memorial Hospital in Pawtucket. Patients who expect to receive free hospital care and medical service must be sent there by the Department of Public Aid.

This step limits rightfully the charitable efforts of the institution and its staff to those who really need and deserve such service. The demands made on such facilities in this country are increasing steadily year after year and investigation of the cases applying for gratuitous services often reveals the paradoxical picture of sufficient financial background to provide private medical care.

Recently during a visit to the charity ward of one of our large hospitals the visiting physician was asked by a free patient, "When may I drive my car?" Casual observation is enough to discover a large number of free patients to be undeserving of the gratuitous expert advice of the prominent specialists who visit our hospital wards, and these patients are preying upon the generosity of the altruistic men and women who by their loyal support are maintaining the institutions.

Social service departments have done little towards checking this raid. Recently a social service worker's reply to a query about the necessity of an evidently well-to-do patient receiving free treatment was, "We are not a financial agency." In fact the social service worker and sometimes the district nurse is, in the average, prone to refer patients to free clinics without regard to the patient's ability to pay. Doctors themselves frequently and thoughtlessly refer patients to hospitals for special investigations well knowing that the patient could pay for these services, and yet they are deliberately sent in to the clinics and encouraged thereby to perpetrate the great American fraud,—Get something for nothing even if one lies to do so.

It is high time that this unfair state of things should be curbed, and the Memorial Hospital is to be congratulated for the courage to do so. May this sensible "noble experiment" prove effective. and light the way for others to follow their splendid example.

No true physician exists who is sparing of time, energy, willingness, enthusiasm, or even life itself in behalf of a truly worthy charity patient, but the abuses which have grown up under our system of free clinics have shaken the faith of the profession in its respect for "their public."

(From the Side Lines)

COOPERATION BETWEEN HOSPITAL, PATIENT AND PHYSICIAN

By Charles E. Hawkes, M.D.
355 Thayer Street, Providence, R. I.

What I have to say on this subject, has been derived from my acquaintance with, and experience in, various hospitals, extending over a period of twenty-five to thirty years, and does not refer to any one particular institution. I make this statement, believing that hospitals in general are very similar, as regards their care of patients.

Hospitals

Hospitals have increased both in size and in numbers, during the past fifty years, and supply a long felt need in all communities. Previous to their existence, patients both surgical and medical were obliged to be cared for in their homes, by doctors who gave them as prompt and as frequent attention as the distance in miles and the stress of their practice and means of locomotion permitted. The poor, as well as the more well-to-do, demanded the medical man's time and care. The nursing was supplied by the women friends and neighbors, often in relays. Under these circumstances, surgeons and physicians alike worked long and laboriously but creditably, though under great difficulty.

The advent of the hospitals has proven a boon to both patient and physician. The physician is now able to share the care and treatment of his poorer and also his more seriously afflicted patients, with the hospitals, and the latter are able to surround the patients, both poor and rich alike, with the best of care obtainable.

Complaints of Patients with Suggestions for Correcting Causes

Now it is about the care that the hospitals actually give the patient that I wish to call attention.

Many patients, especially the ones who are less disabled, by either sickness or injury, or those financially fortunate enough to be able to afford special nursing attention, make no complaint of their general care, while sojourning in the hospital. But there is a large class, more particularly those

in the ward beds, but by no means limited to them, and those who cannot pay for special or extra nursing attention, who complain of the lack of care or of the poor quality of care received while in the hospital.

Visiting physicians to hospitals all know that a certain number of persistent complainers are better fed and better cared for in the hospital, during their disability, than they would be in their own homes. But let us turn our attention to a list of some of the complaints that these patients make. It includes the following: Signalling for a nurse's attention, and waiting an excessive length of time, even as long as an hour, before receiving a response; waiting an excessive length of time, when in need of the use of a bedpan, following the previous administration of a laxative; waiting an excessive length of time before receiving any medical attention, after arriving at the hospital; disturbed by loud talking and by loud noises outside of their room, or in the ward, both by day and by night; disturbed by the early morning routine of the hospital, especially when they have been kept awake the night before by pain or by severe illness; disturbed by window washing and by other periodic chores, when they are feeling the sickest; the shock to their nervous systems when they are obliged to lie and listen to, and often to witness the groans, vomiting, hemorrhages and sufferings of nearby patients; the sight and sounds of patients near at hand, just before they die, and the preparation of the latter before they are finally trucked away. Patients complain of the noises of those who are coming out of the effects of ether; of visitors swarming in to talk with their neighbors; of losing money and their other valuables during their stay in the hospital; of not receiving fruit, and other articles of food left by relatives and friends for them, and supposed to be cared for, by the hospital. They complain of being obliged to dress differently while in bed than when they are at home, and of windows being left open near their beds, resulting in their catching severe colds and even suffering from pneumonia. Finally, and by no means least important of all, must be added the ever rapidly mounting expense to the patient while he resides in the hospital. This list could undoubtedly be generously added to.

Suggestions for the correction of the complaints, already enumerated above, will serve to cover a list several times its length.

Let us begin with the admission of the patient into the hospital. I can see no reason why such a patient should not receive the prompt attention of at least one of the assistant superintendents, or a resident physician, who could offer the greatly desired display of sympathy to the patient and see to, or direct his prompt removal to bed, to operating room, or wherever he should go. The patient looks upon his first visit to a hospital with more or less dread, for his mental picture of what goes on in such an institution has been formed mostly from stories, which, to the uninitiated are far from sounding attractive. He is not favorably impressed with the scurrying hither and thither, of orderlies and nurses, who pay him scant heed, but go about their duties with laughing and chatter. The one who puts a kindly hand on his shoulder and begins to take his indisposition at heart is the one he reaches out to cling to in his misfortune. In other words, this human element, touch, or sympathy is what the patient is accustomed to at home, but which is very apt to be found lacking in the hospital.

I have heard patients say that they have actualiy waited an hour, by the clock, before a nurse appeared in response to the repeated signaling to her desk. Of course, we all know that this is not a common occurrence and that furthermore, it should not be, but we do know that there are more unpardonably long waits than should occur. If there is only one nurse on duty and a particularly sick patient occupies her undivided attention for a long period of time, then there is fault with the organization or system of the hospital. Where there is one, or more, seriously sick persons in the ward, more nurses should be on duty there, or else orderlies or convalescent patients, or both, should at least answer the signals, and either run the necessary errands, or report to the nurse for her solution of the emergency.

I have stated more than once, that one of the best gifts that could be given to a hospital would be a supply of bedpans sufficient to allow one for each bed and have it hung in a place handy for the patient to reach it. Possibly to some, this statement may appear in the light of an exaggeration, but I will make this suggestion, that whenever a patient has been given what is expected to result in a

thorough-acting laxative, a properly protected bedpan should be placed in his bed, or near at hand, for him to use, if assistance is liable to be slow coming, for sufficiently good reasons. This particular complaint of patients is not an uncommon one, it has existed for years in some institutions, without any noticeable attempt at its correction. Also loud noises, or continued noises, and talking and laughing, disturb patients who are sick. It is difficult for those who have never been very ill, to realize this. At home, the complaints of the patient are apt to be heeded and provisions made to accede to his wishes, but in the hospital, he naturally finds it more difficult to bring this about. Signs requesting quiet, are not enough. The necessity for controlling noises of all kinds, should be repeatedly explained to nurses, orderlies and workmen, about the hospital, and in its vicinity. Nurses and orderlies remain a comparatively short time in the hospital, and this is what makes the frequent drilling in the anti-noise campaign so important. There is too little supervision of this either by the superintendent's department or by the nurses' office.

Another rather common complaint is occasioned by the hospital's routine work in the early morning. Patients are aroused early, to allow for the necessary cleaning up work about the wards. This includes bathing and feeding of those confined to their beds. The trouble with general rules governing such institutions as hospitals is, that exceptions to them are too seldom made. For instance, the patient who has been kept awake for the greater part of the night, due to discomfort of one kind or another, may finally fall asleep, near daylight, only to be aroused with the others, so that the hospital affairs may not be impeded. I have often remarked that from my observation and personal experience, the hospital is planned to take precedence over the patient, and I believe this to be a wrong method. The hospital is for the patient and not the patient for the hospital. A quiet room should be selected for the use of those usually few patients, in which they could be placed, and not be disturbed in the early morning. It means much to such individuals, even though it may be considered of little importance by those who have been fortunate enough to have enjoyed a good night's rest.

To present another example, along this line, why should it be insisted upon that windows be washed in the presence of seriously sick patients? This duty entails pushing up and down windows, tramping about the patient's room with a squeaking pail, and then the scrubbing noise. A job like this can hardly be expected to quiet the nerves of one who sleeps poorly, eats but little, and is restless and irritable, the result of his sickness. If such windows were not cleaned for another week, it would add to the patient's comfort, even though the postponement did interfere for a few days with the general hospital routine. I realize, as we all do, that a large institution cannot be governed satisfactorily without the establishment of certain general or routine rules, but care should be taken not to lay down such hard and fast ones that they cannot be broken, where the proper care of the patient is concerned.

A very just cause for complaint by the patient results from keeping him near those in serious distress and those about to depart from this world. It is not right to subject people who are unaccustomed to the presence of suffering and the throes of death, to such scenes when they are sick themselves. It is discouraging to them, to say the least, and should tend to prolong their illness or convalescence and add to their previous dread of hospital association. The sickest patients should be apart by themselves.

More attention is given nowadays to allowing ether subjects to recover from the effects of their anesthetic before returning to their regular beds, and this plan prevents the disturbance of neighboring patients.

Most of the very sick people receive too many visitors, probably more than the attending physician is made aware of. Individuals who visit the ill, do so usually, under the best of intentions. They believe that they are aiding them both to pass time pleasantly, and also to take their attention away from their discomforts. On the other hand, the sick ones may not be feeling well enough to entertain visitors, and therefore their physical and mental ills may be made worse and upsets result, and convalescence prolonged.

A rather common complaint is caused by another routine hospital rule. I refer to the one that compels the patient to remove the undershirt he is always accustomed to wear, by night as well as by day, and then draping him in a night robe that ties

in places in the back, usually leaving that part of his anatomy exposed somewhat, unless he decides to retain the decubitus position. It makes no difference whether the patient is a child or an aged person. The rule is a blanket one, but even so, it fails to shed its warmth sufficiently, and when the window at the head of the bed is raised or lowered, the result is not infrequently a serious illness, such as pneumonia and occasionally a fatality. I can't understand why measures aren't taken to prevent unfortunate occurrences of this kind, and if they have been, my experience has so far failed to make contact with it. Why not, I ask, allow the aged ones, whose circulation is poor and consequently are less immune to catching cold, than the younger individuals, to retain their undergarment and wear it, according to their custom and need? It probably makes a little extra work for the hospital, another suggestion that the patient's welfare comes second.

The Need of Better Cooperation Between Physician, Superintendent and Trustees of Hospital

It is possible that some of the criticisms just enumerated, do not come to the notice of either the superintendent of the hospital nor to the visiting trustees, but in the absence of practically all means of regular contact between them and the visiting staff of physicians, this is not to be wondered at. Many things that take place in the ordinary care and treatment of patients in the hospital, errors of both omission and commission, are not communicated to the superintendent's office, for very obvious reasons. Criticisms are not warmly welcomed in the hospital, and are seldom sought. I have never heard of the trustees inquiring among the staff members for suggestions or criticisms of anything that takes place in their department. It may occur, but it has never been brought to my attention, and I have made a few inquiries along this line. A hospital cannot be run to the satisfaction of the patient, unless this occurs, and it is the satisfaction of the patient that should always be sought, for without the patient, the hospital would have no excuse for its existence.

The visiting physician is the only one, of all those who have anything to do with the care and treatment of hospital patients, who visits people in their homes. He consequently becomes more intimately acquainted with their likes and dislikes, emotions, habits of living, desires and even demands, than any of the others. This knowledge should be an asset to the running of the hospital, and could be easily obtained.

Suggestions for Better Cooperation

My suggestion would be to hold a conference once a year or *oftener* if deemed advantageous, between representatives of the trustees, the superintendent's office, and the visiting staff of physicians. Topics for discussion arising in the departments of any of the above representatives could be brought up at these meetings and satisfactorily disposed of, for they would be topics of interest to all who had the welfare of the hospital at heart. Criticisms like those I have enumerated could then be discussed and undoubtedly solved, within the hospital walls, instead of being made public property, as at present, to the detriment usually of the hospital. A much happier and more friendly cooperative spirit would be aroused among all departments of the hospital, than now exists, when an occasional greeting or hand shake is the only point of contact that is made, from one year's end to the other. This arrangement would also do away with the feeling that one department is going over the head of another, to obtain information, and thereby prevent any ill feeling that might possibly be stirred up.

The Clinical-Pathological Conference at the Rhode Island Hospital

Case No. 1. Presented by Dr. Alex Burgess.

E. P. Age 54. Native cement worker.

C. C. Weakness. Loss of weight. Edema about eyes. Nocturia.

P. I. Until November, 1931, patient was overworking and keeping irregular hours. At that time business began to fail and he began to worry, lose weight and noted increasingly frequent attacks of weakness and dizziness. Normal weight 160. Present weight 130-135.

For 10 years has had attacks of nocturia 2-3x lasting for 1-2 weeks at a time. At present has nocturia every two hours and night volume is greater than day. No hematuria or tenesmus.

Has had edema of eyelids for past two days.

Systems. Negative except as noted.

F. H. Irrelevant except that mother died of Hodgekins disease.

P. H. Measles, mumps, pertussis. Pneumonia at 14 years, good recovery.

Physical Examination
(only positive findings)

Well developed, poorly nourished, white male adult, short and cooperative.

Head. Alopecia.

Eyes. Left pupil larger than right. Ophthalmoscopic examination shows number of fine opacities (threads) in vitreous of both eyes. Retinae are pale, discs pale, well outlined, flat. Retinal vessels (veins and arteries both) are small. Several irregularly outlined white patches in retinae. No fresh hemorrhages. (Hyalitis and retinitis).

Teeth. Many out. Others poor condition.

Tongue. Dry, furred. Mucous membranes pale.

Neck. Carotid and jugular pulsations prominent.

Chest. Emaciation.

Heart. Slight enlargement to left. LBD=10 cm. blowing systolic murmur best heard at apex. B.P. 120/60.

Peripheral vessels. Some arteriosclerosis.

Genitalia. Both inguinal rings markedly dilated.

Laboratory Data:

Urine: Negative except for L.P.T. of albumen and occasional hyaline and granular casts. (These disappeared on subsequent examinations.)

Blood Chemistry: Urea 20, Sugar 76.

Blood studies, 2/4/32; R.b.c., 1,440,000; W.b.c. 7,450; Hg. 74% (s); Smear showed anisocytosis, microcytes and reticulocytes. P.M.N., 76%; lymphecytes, 24%; icteric index, 3% corpuscular volume, 19; corpuscular volume, % 42; color index, 1.57; mean corpuscular volume, 135; volume index, 1.5; saturation index, 1.04.

Progress

2/8/32. Inasmuch as the blood studies were so suggestive of P.A. the patient was given Lederle's liver extract 3 cc every 6 hours for 4 doses. The reticulocyte count was done daily but failed to show any response. (5%, 5%, 5.2%, 3.1%). 2/11/32. R.b.c. 1,970,000; Hg. 36% (s). 2/14/32. R.b.c. 2,570,000; Hg. 40% (s).

2/8/32. Stools tarry—Benzidene 4 plus.

2/10/32. Gastric analysis showed free HCl. after administration of histamine.

2/10/32. Wasserman and Hinton reported positive. (positive on repeated test).

2/9/32. X-Ray report "Stomach normal in position and outline, and empties fairly well. Marked dilation of first portion of the duodenum, which is fairly smooth. Advise further study, including G.B."

Subsequently: No lesion seen in small or large bowel. Gall Bladder not visualized. Advise repeat.

2/20/32. Patient suddenly developed lobar pneumonia in left chest. Feltons serum given once. Type III grown out of sputum. Serum therapy discontinued.

2/27/32. Patient died.

Case No. 2.

This is a 54 year old man who came in because he was very weak. He lost a lot of weight. He had been working extremely hard and was all run down. His only other complaint has been nocturia, and a little edema of the eye lids. Nothing in the record history. As we looked him over we noticed a few things of interest. The left pupil was larger than the right, etc. (read mimeographed copy).

Everything pretty normal except for this marked anemia. Blood chemistry practically normal. When we came however to microscopic study of his blood we struck something. His hgb. was not as low as we thought. He had a very high color index. The differential was practically normal. Examination of his blood then showed an anemia. On the blood alone we were inclined to make a diagnosis of pernicious anemia. However the icteric index was only 3%. As we studied him we found he had 5% reticulocyte in his blood. He was given liver extract. We gave four doses. If you will notice under progress (5%, 5%, 5.2%, 3.1%). Those were taken over about seven or eight days time. In other words there was no rise in reticulocytes at all. He also showed free hydro cholorride in his gi. analysis. We also found a four plus Benzidine in his stools. Wasserman and Hinten were reported as positive and were repeated again and again they were positive.

They advised gall bladder study. This was not visualized and they advised repetition. This patient developed a rise in temperature to about 103 with

dysp. and rapid pulse and with signs of consolidation in his left chest. We gave one dose of serum which had no effect whatever. We found a type III pneumococcus in his sputum. He went through a course of about a week with his pneumonia doing fairly well for a few days and then going rather suddenly bad. So we have an unexplained anemia which we first thought would turn out to be P. A. We had evidence of syphilis in the positive Wasserman. We did not mention that his heart was apparently normal except for that murmur and we had the development of pneumonia which was terminal. We felt he had a type III lobar pneumonia. He had syphilis and we felt he had a microscopic anemia. We thought there was probably malignancy somewhere.

Demonstration of X-ray films: Dr. Batchelder.

"Portable film of the chest was taken just shortly before he died and showed the dullness in the left chest which goes with the clinical findings of pneumonia. Films of the stomach were made. They don't indicate the large duodenum which was mentioned very well. That is larger than normal. The cap is larger than normal and this film here shows very large cap. It was reported as normal."

Demonstration of postmorten material: Dr. Clarke.

"At the time of postmorten the pneumonia involved all the lobes on the right. There is a sort of syphilitic aortitis. The interesting part is the stomach. Here is this duodenum which was considerably dilated—larger than normal. It was 4 cm. in diameter. We found no explanation for that. There was no restriction. Here is the pyloric ring and here just to the gastric side is a smooth, punched out ulcer 2 cm. in diameter. Old chronic ulcer. Grossly nothing that can be thought to be malignant and here sticking right out of it is a little artery. At the time of postmorten it showed up very nicely. The reason for presenting these two cases is quite evident. Two cases which clinically were much the same—marked secondary anemia with bleeding from the gut with the pathology much different.

SOCIETIES

Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. James W. Leech, at 8:50 P. M., May 1, 1933. The records of the last meeting were read and approved. The Standing Committee having approved their applications, the following were elected to membership: Anthony A. Iavazzo, John F. Streker.

The first subject of the evening was "Trichomonas Vaginalis." Dr. David Brodsky reported on an investigation carried out at three clinics, the Miriam Hospital, Providence Lying-In Hospital and the House of the Good Shepherd. This is a flagellate parasite 15 to 25 microns long and nearly as broad, recognized by their motility in a hanging drop. They are found in vaginal secretion and sometimes in urine. There is still a varying opinion as to their pathogenicity. They are usually associated with a foamy irritating discharge and bad odor. Treatments must be thorough to reach all parts of the vagina. Many medicaments are used. He showed two slides: one illustrating their morphology. Dr. Craig S. Houston reported cases from the Lying-In Hospital; not all had signs or symptoms. Dr. John F. Murphy reported on the quinine sulphate treatment. The discussion was entered into by Drs. Matteo, Ira H. Noyes, Langdon and Brodsky.

The second subject was "Clinical Significance of Pancreatic Disorders" by Dr. Anthony Bassler of New York city. He felt that the text book physiology of the pancreas is not accurate. The so-called proteolytic enzyme is not active as secreted, being only a pro-enzyme. There is probably no such thing as lipase as the lipalytic action can be accomplished simply by a weak alkaline solution. He showed slides illustrating by photomicrographs this action. Besides the Islands of Langerhans there is only one type of cell in the pancreas, and he did not feel that three different substances would be secreted in varying proportions.

He has studied the pancreas in diabetes mellitus, gall bladder disease and angina pectoris and by slides illustrated his graduated analytic tests by which the function can be registered in degrees from 0 to 10. In cholecystitis with a good pancreas function he advises immediate surgery but if the function is low the feeding of pancreatic tissue may restore normal conditions although symptoms may persist for six months. Many cases of diabetes can omit insulin as pancreas feeding can influence the type of sugar in the body. He also

feels that there is a circulatory hormone in the pancreas so that angina pectoris can be handled by pancreas feeding.

The paper was discussed by Drs. Frank Cummings, Burgess, who expressed considerable scepticism, A. T. Jones and Bassler.

The meeting adjourned at 10:55 P. M.

Attendance 138. Collation was served.

Respectfully submitted,

PETER PINEO CHASE, *Secretary*

NOTE

Dr. Louisa Paine Tingley has been re-elected Councilor of the Suffolk District Medical Society for 1933-1934.

NOTICE

AMERICAN MEDICAL ASSOCIATION
535 No. Dearborn St., Chicago, Ill.
Council on Medical Education and Hospitals

There is being widely distributed an announcement of the Illinois College of Physicians and Surgeons, 20 North Ashland Boulevard, Chicago, which includes the following statement:

> "Courses offered and requirements for graduation are class 'A' requirements."

Inasmuch as the Council on Medical Education and Hospitals of the American Medical Association is the only body which has ever rated medical schools as class A, it is clearly implied that the above named school conforms to the standards prescribed by this Council. Such an inference, however, is wholly unwarranted. The above institution is conducted by a group of chiropractors and does not even remotely approach the standards of a class A medical school.

You are apprised of these facts in order that you may be able intellingently to advise those of your students who may be about to choose medicine as a career.

Very truly yours,

WILLIAM D. CUTTER.

BOOK REVIEWS

THE EXPECTANT MOTHER'S HANDBOOK, by Frederick C. Irving, A.B., M.D. Houghton Mifflin Company, Boston, 1932.

This book serves its object well to acquaint mothers with the facts of pregnancy and childbirth and to dispel certain untruths and superstitions. It further guards the young women, pregnant for the first time, against the ignorance of her well meaning relatives and friends. The author assembles his facts skilfully and presents them in a simple, direct form. The book can be highly recommended to expectant mothers. Dr. Irving leaves nothing to the imagination but answers all the questions authoritatively and clearly which have been presented to him by his patients during his years of practice. The thirteen chapters of the book are well chosen and the chapter on the biological aspects of pregnancy is of added interest. However, the psychological aspects of pregnancy do not appear to be sufficiently emphasized and a chapter added to ease the mental strain and exaggerated attitudes which pregnancy brings on would add materially to this very valuable book.

A PUBLICATION OF THE WHITE HOUSE CONFERENCE

HOSPITALS AND CHILD HEALTH

1. Hospitals and Dispensaries.
   Clifford G. Grulee, M.D., Chairman.
2. Convalescent Care.
   Adrian V. S. Lambert, M.D., Chairman.
3. Medical Social Service.
   Ida M. Cannon, R.N., Chairman.

The Century Co., Publisher

This volume is divided into three sections as indicated above, the first dealing with available facilities for care of children in hospitals and dispensaries; the second, a survey of the problem of convalescent care for children suffiering from acute and chronic diseases. The third deals with the purpose and aims of a medical social service, and shows the surprising lack of a sufficient number of such agencies.

This book contains a wealth of material in all three sections. The statistics and tables are interesting, but are numerous and to some will be tiresome, but on the whole it is well presented and should prove interesting to anyone interested or engaged in work in the fields discussed. It gives an insight into what is being done, how it is being done, and suggestions as to how conditions may be improved.

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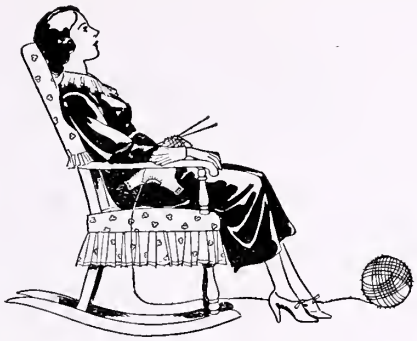

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CONTENTS

ORIGINAL ARTICLES

Presidential Address. N. Darrell Harvey, M.D. 97

Contents continued on page IV advertising section.

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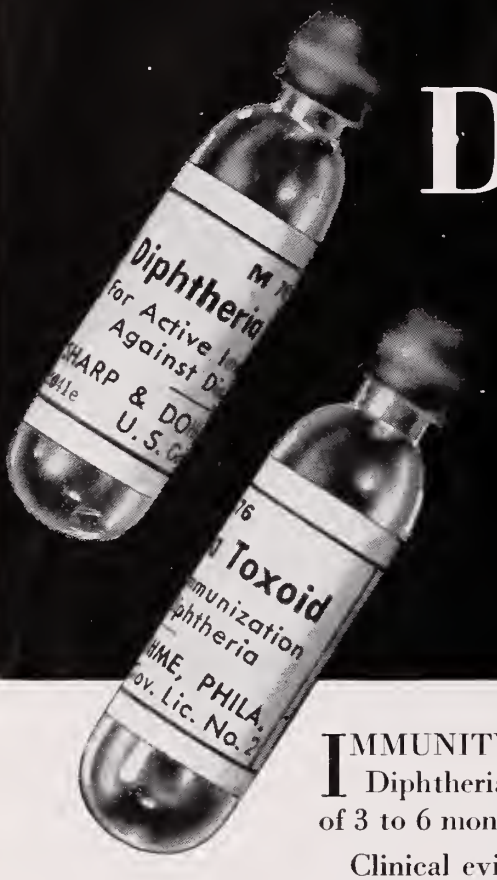

Diphtheria Toxoid Mulford

IMMUNITY against diphtheria is produced quickly with Diphtheria Toxoid Mulford (within 6 to 8 weeks instead of 3 to 6 months).

Clinical evidence shows that this protective immunity is developed in 90% to 95% of young children and in 85% to 95% of those over 15 years. In addition, Diphtheria Toxoid Mulford does not contain serum.

It is stable and non-toxic—does not acquire toxicity upon freezing or with age. Its relative freedom from toxicity is such that five human doses cause no symptoms of poisoning in a guinea pig.

Because generally only two doses are required, there is less inconvenience for the patient and a saving of labor for the physician.

Diphtheria Toxoid Mulford is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

It is supplied in packages of two 1-cc. ampoule-vials (1 immunization); twenty 1-cc. ampoule-vials (10 immunizations); and one 30-cc. ampoule-vial (15 immunizations).

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AMERICAN MEDICAL ASSN.
Council on Pharmacy and Chemistry

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THE RHODE ISLAND MEDICAL JOURNAL

The Official Organ of the Rhode Island Medical Society
Issued Monthly under the direction of the Publication Committee

VOLUME XVI
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ORIGINAL ARTICLES

PRESIDENTIAL ADDRESS*

By N. Darrell Harvey, M.D.
Providence, R. I.

Officers and Fellows of the Rhode Island Medical Society and Honored Guests:

In accordance with the by-laws and established custom of this association, the retiring President is called upon at the annual meeting to review its activities during the past year and formulate such suggestions as, in his opinion, may promote its future welfare.

As a general rule our meetings have been well attended and papers of interest by fellows of the Society as well as out-of-town men of distinction have featured our literary programmes.

During the present year a most notable event in the history of the Rhode Island Medical Association occurred on February 20th, when, through the invitation of the Editor of the Rhode Island Medical Journal, we were honored by an official visit of the President of the American Medical Association, Dr. E. F. Cary of Dallas, Texas, at the annual dinner of the Journal at the Hotel Biltmore. Never before has such an honor been bestowed upon the medical profession of this state. The dinner was well attended, and those of you who were present on that occasion and had an opportunity to meet Dr. Cary undoubtedly were impressed by his pleasing personality and interested in his discussion of some of the problems which are now confronting the medical association.

My visitations to the district societies that I have been able to make have been of a most pleasurable nature.

The interest shown by the members and the large attendance reported at their meetings speak in high terms for the sound condition of most of the component parts of our Association. But there is one of the district associations which will call for rehabilitation at the hands of the incoming administration. While most of these societies are actively functioning within themselves, we do not have the representation from them at the meetings of the State Society that we should have. We are situated in the smallest state of the Union, every part of which is now easily accessible through the instrumentality of good highways and improved methods of transportation, so no excuse for non-attendance should be tenable from this standpoint. If the four quarterly meeting which the Association has held for a number of years is considered too many and fewer sessions in the course of a year would be the means to attract a better attendance from the members of the out-of-town associations, I am in favor of a reduction in this number.

More papers should be presented by members of the outlying societies at the State Society meetings and a greater disposition to participate in the discussions of both the literary as well as the business programmes on these occasions should be shown.

Our official organ, the Rhode Island Medical Journal, has carried on as in the past in its efficient and high class manner under its enterprising editor and business manager with a staff of well qualified assistants, whose effort it is to keep the members of our Society informed of all medical activities in our state. Its further usefulness is constantly being shown by its presentation with unbiased attitude of subjects of national interest to the medical profession.

And here I want to remind you that our little Journal is unique in being a strictly medical publication which has been for many years, and still is, on a self-supporting basis.

The Society is proud of its official organ and members read with interest its contents from cover to cover, but we do all make it our aim to show a preferential attitude towards those business concerns and individuals who, in no small degree, contribute to its income by advertising in its columns. This consideration I sincerely ask you to foster, to the end that the continuation of their patronage may be maintained and a duty performed on the part of the fellows.

The Annual Reports of the Secretary and of the Treasurer have been presented and acted upon by

*Read before the Rhode Island Medical Society at the Annual Meeting, June 1, 1933.

both the Council and the House of Delegates, and have at the present meeting received your approval.

These reports show the Association to be in a most satisfactory condition with a roster of 469 fellows, all bills paid and a substantial balance in the treasury. When we consider financial conditions as they are at present, the response on the part of the fellows in the payment of their annual dues, I am informed, has been a surprising one.

The report of the Medical Library Committee as presented at the last meeting of the House of Delegates shows a very considerable gain in the number of volumes in the past year, amounting to two hundred and seventy-seven with an addition of one hundred and forty volumes to our valuable collection of bound journals. The work of classifying and cataloguing the library has been made possible through the generosity of some of our fellows with the help of proceeds from the Fiske Fund and Clinical Conference Fund. The supervision of this work is in the hands of Dr. Pickles, whose willing capacity to work for the interests of the Association has been shown on many occasions.

The fund now at his disposal has enabled him to secure the services of an assistant to Miss Dickerman in carrying out this work, but will not be sufficient to effect its completion. However, such progress as the availability of funds will permit will be carried on to relieve a long-felt want and the thanks of the Association are now extended to Dr. Pickles for the valuable services he is rendering the Society.

As you all well know from the mass of literature that has appeared not only in the medical but also the lay press of the country, the committee that was appointed to consider the cost of medical care has finished its work and has rendered its report. Composed of several physicians, dentists, health officials, sociologists and representatives of several of the big foundations, this committee, after five years of strenuous work at the cost of approximately $1,000,000, by painstaking analysis of "what's wrong with medical practice," reached a conclusion and offers the medical profession a plan which it feels will solve the situation with justice to both patient as well as physician.

Two reports were presented by this committee—the one the majority report, the other being called the minority report. The main features embodied in the majority report calls for the establishment of Group Practice, where all medical and surgical service shall be placed in the hands of a group of physicians centered around a medical center, preferably a hospital. From this central station, medical aid is to be distributed to a given proportion of the community.

While some regard has been expressed for the necessity for the continuance of the close and confidential relationship that should exist between patient and physician, it is difficult to understand how this association can be maintained under Group Practice.

The method suggested for the payment for such services is to be provided for by voluntary insurance or by community taxation. This report has not been favorably received by the physicians of the country inasmuch as it undeniably implies a revolution in the practice of our profession which might eventually end in a condition of socialism of medical activities. Furthermore, it interferes with the privilege of the patient to have the physician of his choice. "When the patient does not choose his physician but has him chosen for him, the relations between the two, once personal, becomes rather a matter of business." I quote from a lay magazine, *America*.

This report is absolutely at variance with the ideas of the American Medical Association, and has encountered the severest criticism from medical men in all parts of the country.

Group medicine may satisfy the medical needs of some countries of the world, and may in this country to some extent assist in providing assistance to the poor and indigent, but the supplanting of individual private practice by such a system will ruin its scientific opportunities and in the end may constitute "a kind of public ownership of medical service." This report was signed by the Chairman of the Committee, Dr. Ray Lyman Wilbur, a former President of the American Medical Association and President of Leland Stanford University, with some doctors not allied with the practice of medicine as well as the lay members.

The other report, known as the Minority Report and written almost entirely by the practicing physicians and dentists on this committee, commends itself to the medical profession and laity and has received the endorsement of the American Medical Association.

Opposed to the revolutionary attitude of the Majority Report, it recommends a safer and more ethical way of approaching this subject.

In a recent editorial in the *Illinois Medical Journal,* the following statement appears. "Probably no medical literature in the last three decades is of half as much importance to the doctors of the country as the following text of the Minority Report of the Committee on the Cost of Medical Care as in this report medical integrity rather than medical interest reveals itself."

Then follows a summary of their recommendations, which many of you may have already read:

1. That Government competition in the practice of medicine be discontinued and that its activities be restricted to certain types of service.
2. That Government care of the indigent be expanded with the ultimate object of relieving the medical profession of this burden.
3. That co-ordination of medical service be considered an important function for local communities.
4. That united attempts be made to restore the general practitioner to the central place in medical practice.
5. That the corporate (i. e., organized) practice of medicine be vigorously and persistently opposed as wasteful, inimical to high quality or productive of unfair exploitation of the medical profession.
6. That careful trial be given methods which can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice.
7. That our State or County medical societies develop plans for medical care.

The Minority Report rightly places full responsibility in this matter upon the organized profession, for who are better fitted to judge of the best system for providing suitable and adequate medical care than the physicians themselves? So, this problem must be solved by the medical profession without intrusion by any political or legislative agency. In conformity with the recommendations of this report, in many sections of the country the gravest attention is being devoted by the medical profession to devising such plans for the provision of adequate medical and surgical service as are suitable to the needs of the entire population of their different communities. In some of the states, satisfactory plans are in operation which are working to the advantages of both laity and physician. But a good deal of uncertainty exists amongst medical minds as to which end of the line investigations should start from. The American Medical Association cannot take a position of leadership in this matter and lay down any systematic method for general observance inasmuch as the situation is not identical in all parts of the country and a plan that is suited to one community would not satisfy the needs of another.

Rather must its component units — the local state societies — through their county constituents, assume the primary activities and endeavor to handle the problem from the standpoint of the needs of their particular environment. According to Dr. Olin West, Secretary A. M. A., "Many important questions must be solved in the light of local conditions but all can be considered and properly settled on the basis of three fundamental principles: principles of ethics, principles of economics and fundamental natural principles."

Admitting that we must begin at the bottom rather than at the top of our organization ladder in order to furnish some constructive plan, the public must first be impressed with the fact that it is their bounden duty to care for their local indigent, "not because of the fact," as some writer has explained, "we need the money" but to assure them that the medical profession stands ready to perform its duty and to render the best possible medical service." The medical profession cannot be held responsible for the existence of indigence, and therefore should not be expected to render gratuitous services under what, of course, is a community responsibility."

Under existing conditions, no legal restriction exists against any licensed member of the medical profession styling himself a specialist, thereby indicating his qualifications and ability to exercise such skill and knowledge in a given field as can only come from intensive study and experience covering a long period of special application.

As a result our ranks are filled with a host of self-styled specialists, for as a recent critic has stated, "it is easier to become a specialist than a good, well-trained, up-to-date general practitioner."

The American Medical Association constantly reminds us that the protection of the public should be our ultimate aim, so unless we exercise some control over those of us who claim special ability in the treatment of certain diseases, our duty in safe-guarding the people will not only fall short of its proper goal but we may find that this responsibility has been assumed by some outside organization.

(*Continued on page 102*)

CHARLES S. CHRISTIE, M.D.

West Warwick, R. I.

PRESIDENT *of the*

Rhode Island Medical Society

THE RHODE ISLAND MEDICAL JOURNAL

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RHODE ISLAND MEDICAL SOCIETY

Meets the first Thursday in September, December, March and June

CHARLES S. CHRISTIE	*President*	West Warwick
ALBERT H. MILLER	*1st Vice-President*	Providence
ROLAND HAMMOND	*2nd Vice-President*	Providence
J. W. LEECH	*Secretary*	Providence
J. E. MOWRY	*Treasurer*	Providence

DISTRICT SOCIETIES

KENT

Meets the second Thursday in each month

DR. CHARLES S. CHRISTIE	*President*	West Warwick
DR. L. J. SMITH	*Secretary*	Buttonwoods

NEWPORT

Meets the second Thursday in each month

D. P. A. JACOBY	*President*	Newport
ALEXANDER C. SANFORD	*Secretary*	Newport

PAWTUCKET

Meets the third Thursday in each month excepting July and August

ELLIOTT M. CLARKE	*President*	Central Falls
A. L. VANDALE	*Secretary*	Pawtucket

PROVIDENCE

Meets the first Monday in each month excepting July, August and September

J. W. LEECH	*President*	Providence
P. P. CHASE	*Secretary*	Providence

WASHINGTON

Meets the second Wednesday in January, April, July and October

E. E. KENYON	*President*	Kingston
JOHN CHAMPLIN, JR.	*Secretary*	Westerly

WOONSOCKET

Meets the second Thursday in each month excepting July and August

W. A. BERNARD	*President*	Woonsocket
T. S. FLYNN	*Secretary*	Woonsocket

R. I. Ophthalmological and Otological Society—2d Thursday—October, December, February, April and Annual at call of President. Dr. Herman A. Winkler, President; Dr. N. A. Bolotow, Secretary.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October, Dr. Fenwick G. Taggart, President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

THE COSTS OF MEDICAL CARE

In a subsequent issue the JOURNAL will present an abstract of the Final Report of the Committee on the Costs of Medical Care. No document of a medico-social nature which has appeared in recent years has been provocative of so much controversy, and there is great need of careful, dispassionate consideration of the entire subject. Many of the abstracts which have appeared have been strongly tinged with the opinions of those putting them forth and have found the Report to be an admirable program for the future development of the practice of medicine, or an extremely dangerous document," "inciting to revolution"! Both these views, of course, are extreme, and the JOURNAL presents this abstract in the hope that its readers may consider the reports of the various groups in the Committee on their own merits. Almost a million dollars has been expended in the studies which form the basis of this publication and it is not likely that the matter will be allowed to remain dormant. Strong forces are at work to chance our methods of practice and we cannot sit by idly while inexperienced theorists determine for us matters which we alone are competent to settle. There are undoubtedly grave faults

in the present system; there are probably equally grave faults in the schemes thus far put forth to correct the present evils. Inflammatory phrases and sarcasm have no place in the consideration of a matter of such moment, and it is to be hoped that the leaders of medical thought and opinion will gradually evolve a plan which will be consonant with those ideals which have made our profession what it is, and will at the same time be applicable to conditions as they now exist.

PRESIDENTIAL ADDRESS

(*Continued from page 99*)

Several countries have passed legislation for the registration of specialists, but I know of no state society which has formulated so detailed a plan as that of the State of New Jersey.

The matter of state society control of this problem is new, but is believed by the A. M. A. "to be distinctly superior to plans previously offered."

With the idea of determining how the medical welfare of the public of our state can best be maintained, I was called upon to appoint at the December meeting of this association a committee to consider the cost of medical care, whose function it will be to study this subject in its various phases in relationship to our communities and to report its findings to the State Society. Since then much intensive work along this line has been performed by certain members of this committee, but sufficient time has not yet elapsed to enable them to formulate anything more than a preliminary report.

Such a report has been presented and has been favorably acted upon by the House of Delegates at their last meeting. It later will come before this association for its action.

Embodying the views of the members so far advanced, the Committee on the Cost of Medical Care recommends that as a fundamental aid to their deliberations a State Society Board of Classification be appointed by the President of the Rhode Island Medical Society to classify the entire list of fellows of this association under the headings of the different specialties with which they may be associated.

Membership in this board shall consist of nine members, including the President, 1st Vice President and Secretary ex-officiis. It is further recommended that the members of the Board of Classification be appointed as follows:

Two for three years, two for two years and two for one year and thereafter two each year for three-year terms.

In order that the lay public may be informed of the special qualifications of the fellows of the Society, the committee further recommends that the board be given full power to act in the matter of classification and publication. It also recommends that no member of the present committee shall be appointed a member of the board except the above mentioned officers of the Association.

When the classification and certification of our members as specialists has been completed, not only will they, themselves, profit by the receipt of their endorsement by the State Society, but the safety and welfare of the public will be more consistently protected. And here I commend to your consideration the plan suggested by the Medical Society of the State of New Jersey, and hope that the day is not far distant when such a scheme or some other fashioned along similar lines will be universally adopted by the various state organizations.

Now that I am about to be demoted and returned to the ranks and shall yield up the gavel to my successor, I desire to express my sincere thanks to the officers and fellows of this Association for the splendid spirit of co-operation that they have displayed during my term of office. While the Council has been called upon to meet more frequently than is usual in the course of a year, the sessions have always shown a large attendance.

To the members of the various committees I extend sincere feelings of appreciation for the special work that they have succeeded in accomplishing. I cannot close these remarks without expressing my estimation of the valuable assistance that I have received from our time-honored and ever-willing Secretary. From his long experience with the work of the Association and familiarity with the duties of his office, he has been to me of infinite help and I deeply regret that our pleasant official association is about to end.

And from you, fellows of the Society, I am confident I can entertain the assurance that whatever the future may have in store for the practice of medicine, your interest in this Association will be maintained to the end that the Rhode Island Medical Society will continue to prosper and live up to the high ideals and ethical standard for which it has always stood.

SOCIETIES

The Rhode Island Medical Society
Council—Annual Meeting
May 18, 1933

The annual meeting of the Council was held at the Medical Library, May 18, 1933, and was called to order by the President, Dr. N. Darrell Harvey, at 4:30 P. M.

The minutes of the special meeting were read and approved.

The Treasurer's report was received by the Council, which voted to recommend that the House of Delegates adopt same as read.

Dr. A. T. Jones stated that the local committee, formed in 1926 for the purpose of collecting contributions for a Fund to purchase the Walter Reed home in Virginia, had been unable to get any response from the secretary of the Virginia Medical Society, which sponsored the movement as to the distribution of the funds in the hands of the local committee. Dr. Carl D. Sawyer, who as secretary-treasurer held these funds now amounting to $148.57, notified Dr. Jones of his failure to receive any instructions in regard to the money, and asked that the Society take action on it.

A motion was made and seconded that these funds in the hands of the local committee be turned into the general funds of the Rhode Island Medical Society, and that the committee be discharged, and it was so voted.

Dr. Chas. H. Leonard desired that there be published a list of all the Fellows of the Society from its inception to 1916 as compiled by Dr. George D. Hersey. Dr. Leonard offered to pay the expense of setting up of the type for this purpose, and it was moved and seconded that the matter be referred to the Committee on Publication with power to act, and it was so voted.

Six members in arrears in payment of dues were allowed one year's extension in which to pay up their dues by vote of the Council.

Adjourned.

Respectfully submitted,

J. W. Leech, *Secretary*

Annual Meeting of House of Delegates

The annual meeting of the House of Delegates was held May 18, 1933, at the Medical Library, and was called to order by the President, Dr. N. Darrell Harvey, at 5:30 P. M.

The first order of business was the election of officers and committees for 1933-34, and Dr. A. T. Jones presented the following nominees for officers and committees:

President

Dr. Chas. S. Christie.

First Vice-President

Dr. A. H. Miller.

Second Vice-President

Dr. Roland Hammond.

Treasurer

Dr. J. E. Mowry.

Secretary

Dr. J. W. Leech.

Committee on Arrangements

Dr. A. L. Potter, Chairman; Dr. Wm. P. Davis, Dr. Henry McCusker, Treasurer ex-officio.

Committee on Legislation

Dr. H. E. Harris, Chairman; Dr. C. H. Holt, Dr. C. F. Gormly, President and Secretary ex-officio.

Committee on Library

Dr. W. Pickles, Chairman; Dr. C. C. Dustin, Dr. J. E. Donley.

Committee on Publication

Dr. F. N. Brown, Chairman; C. W. Skelton, M.D., Henry Hopkins, M.D., Warren; President and Secretary ex-officio.

Committee on Education

Dr. R. R. Baldridge, Chairman; Dr. Chas. L. Farrell, Dr. Harvey Wellman, President and Secretary ex-officio.

Committee on Necrology

R. C. Hudson, M.D., Chairman; Wm. Mahoney, M.D., John Langdon, M.D.

Auditor for Two Years

Dr. James McCann.

Curator

Dr. C. D. Sawyer.

Delegate to New England Medical Council

Dr. N. D. Harvey.

Delegate to the A. M. A. for Two Years

Dr. Roland Hammond.

Alternate to the A. M. A. for Two Years

Dr. P. Williams.

No counter-nominations were offered and on motion made and seconded, by unanimous consent the by-laws were suspended and the Secretary empowered to cast one vote for officers and committees.

TREASURER'S ANNUAL REPORT, 1932

1932				
Jan.	1.	CHASE WIGGIN FUND		$6,892.21
				$6,892.21
1932				
Jan.	1.	H. G. MILLER FUND		$5,609.10
				$5,609.10
1932				
Jan.	1.	J. W. C. ELY FUND		
		1 bond So. California Edison Co.	$ 980.00	
		Interest on same	50.00	
		8 shares Mechanics National Bank Stock	480.00	
		Interest on same	18.00	
				$1,528.00
1932				
Jan.	1.	ENDOWMENT FUND		
		2000 Oklahoma Gas & Electric Co. 1st Mort. 5%	$1,920.00	
		Interest on same	100.00	
		Cash on hand	2,185.86	
		Bank interest	93.46	
				$4,299.32
1932				
Jan.	1.	PRINTING FUND		$1,677.52
				$1,677.52
1932				
Jan.	1.	E. M. HARRIS FUND		
		2000 Mort. Security Corp of Amer. 5½%	$2,000.00	
		Interest on same	110.00	
		2000 General Public Utilities Co. 6%	1,980.00	
		Interest on same	130.00	
		1000 Central Arizona Light & Power Co. 5%	962.50	
		Interest on same	50.00	
				$5,232.50
1932				
Jan.	1.	FRANK L. DAY FUND		
		3000 Canadian National Railway Co. 4%	$2,979.75	
		Interest on same	135.00	
		Cash on hand	413.60	
				$3,528.35
1932				
Jan.	1.	HERBERT TERRY FUND		
		2000 Missouri Public Service Co. 5%	$2,003.10	
		Interest on same	100.00	
		Cash on hand	247.90	
				$2,351.00
1932				
Jan.	1.	JAMES R. MORGAN FUND		
		500 Missouri Power & Light Co. 4½%	$ 441.38	
		Interest on same	22.50	
				$ 463.88
1932				
Jan.	1.	JAMES H. DAVENPORT FUND		
		1000 Monongahela West Penn Public Serv. 5½%	$1,027.19	
		Interest on same	55.00	
		Cash on hand	110.00	
				$1,192.19

1933
Jan. 1. CHASE WIGGIN FUND $6,892.21
$6,892.21

1933
Jan. 1. H. G. MILLER FUND $5,609.10
$5,609.10

1933
Jan. 1. J. W. C. ELY FUND
1 bond So. California Edison Co. ..... $ 980.00
8 shares Mechanics National Bank Stock 480.00
Paid R. I. Med. Soc. for Journals 68.00
$1,528.00

1933
Jan. 1. ENDOWMENT FUND
2000 Oklahoma Gas & Electric Co. $1,920.00
Cash on hand 2,379.32
$4,299.32

1933
Jan. 1. PRINTING FUND $1,677.52
$1,677.52

1933
Jan. 1. E. M. HARRIS FUND
2000 Mort. Security Corp. of Amer. $2,000.00
2000 General Public Utilities Co. 1,980.00
1000 Central Arizona Light & Power Co. 962.50
Paid R. I. Med. Soc. for Repairs on Building 290.00
$5,232.50

1933
Jan. 1. FRANK L. DAY FUND
3000 Canadian National Railway Co. $2,979.75
Paid for medical books, "Day Fund" 249.94
Cash on hand 298.66
$3,528.35

1933
Jan. 1. HERBERT TERRY FUND
2000 Missouri Public Service Co. $2,003.10
Paid R. I. Med. Soc., subscription to journals 32.50
Cash on hand 315.40
$2,351.00

1933
Jan. 1. JAMES R. MORGAN FUND
500 Missouri Power & Light Co. ..... $ 441.38
Paid R. I. Med. Soc. for expenses 22.50
$ 463.88

1933
Jan. 1. JAMES H. DAVENPORT FUND
1000 Monongahela West Penn Public Serv. $1,027.19
Paid for books, "Davenport Collection" 16.47
Cash on hand 148.53
$1,192.19

Collation and Annual Dinner Expenses	$ 819.64
Expenses of Secretary (Secretary hire)	75.00
Printing and Postage	117.85
Gas	38.99
Electricity	91.24
Fuel	499.75
Telephone	124.56
City Water	14.93
House Supplies and Expenses	423.45
House Repairs	189.13
Librarian	1,660.00
Janitor	720.00
Journals, Ely and Terry Funds	102.73
Davenport Fund	16.47
Safe Deposit	6.00
Treasurer's Bond	25.00
Delegates, New England Medical Council	187.95
Delegate, American Medical Association	100.00
Federal Tax on Bank Checks	1.22
	$5,213.91
Cash on Hand to Balance	1,308.22
	$6,522.13

Cash on Hand January 1, 1932	$ 916.00
Annual Dues	4,260.00
Donations	814.30
Harris Fund	290.00
Terry Fund	100.00
Davenport Fund	55.00
Ely Fund	68.00
Interest on Daily Balance	18.83
	$6,522.13

SECRETARY'S REPORT

May 18, 1933.

I submit herewith the annual report of the Secretary in review of the activities for the year 1932-1933, and upon the present state of the Rhode Island Medical Society.

The regular quarterly meetings of the Society have been held on the first Thursday of September, December, and March; the program for the annual meeting June 1, 1933, is completed. The September meeting was held at the Warwick Country Club.

The House of Delegates met in November, 1932, and February, 1933, for the regular transaction of business of the Society.

The Council held its regular meeting in November, 1932, and has held special meetings at the call of the President in August, December, January, February, and April.

The membership has been increased in the year 1932-1933 by fourteen new members.

The following members have died:

Dr. William W. Keen, Philadelphia, Pa., died June 7, 1932; Dr. F. T. Rogers, East Greenwich, R. I., died August 23, 1932; Dr. R. E. Duncan, Providence, R. I., died Dec. 9, 1932; Dr. C. J. Mahoney, Providence, R. I., died Jan. 3, 1933; Dr. Geo. R. Barden, Providence, R. I., died Jan. 29, 1933; Dr. Gilbert Houston, 2nd, West Warwick, died Feb. 21, 1933; Dr. Henry A. Cooke, Providence, died March 17, 1933; Dr. Raynor Woodhead, Valley Falls, R. I., died April 11, 1933; Dr. W. A. Risk, Washington, D. C., died May 2, 1933.

The total membership roll of the Society is as follows:

Active	468
Non-resident	23
Honorary	5

The Society was signally honored on Feb. 20, 1933, by a visit, on invitation of the R. I. Medical Journal, of the President of the American Medical Association, Dr. Edward H. Cary. A dinner and reception at the Biltmore Hotel was held in honor of Dr. Cary, who addressed the profession on many of the problems brought forward by the report of the Committee on Costs of Medical Care.

The finances of the Society, as the Treasurer's report will show, are in a healthy condition despite the low economic levels to which every activity in our nation has sunk. For this fortunate circumstance the Society owes a debt of gratitude to the faithful stewardship of its Treasurer, Dr. Jesse E. Mowry, and on behalf of the Society I make bold

to express the thanks of the Society for his long and faithful services.

The year 1932 marks a momentous milestone in the life of the medical profession of America. The Committee on Costs of Medical Care in December published the result of their five-year study of this problem and their conclusions and recommendations. Whether we as individuals or as a Society agree with these findings or not, they merit, by their very thoroughness, thoughtful consideration and evaluation by the physicians of the country. They cannot be flippantly and satirically waved aside, nor can they be disposed of by destructive criticism without offering in their place constructive plans which will attain the many desirable objectives laid down by the Committee. A similar recalcitrant and hostile attitude on the part of the British medical profession proved no barrier to the socialization of medical practice in Great Britain. If we would avoid a like fate, measures looking to the betterment of medical service to all the people of the country must be formulated by those to whom the people look for medical advice—not the politician, not the doctor of philosophy—but to the doctor of medicine. It is doubtful if any one plan is applicable to all parts of the country. The American Medical Association representatives on the Committee suggest the County Society as the proper unit to devise methods of improving medical service. It appears to me that in our own compact State of Rhode Island, this Society could act with greater influence than the small district societies. To this end, the Committee which your President appointed under the chairmanship of Dr. Murray S. Danforth, within a week of the publication of the report, is gathering data from other states and communities and addressing itself to the task of trying to find a workable scheme for us and the people of Rhode Island. This will require much time and careful study, and I bespeak your patience on behalf of this Committee.

The Secretary of the Fiske Fund and the Secretary of the Rhode Island Medical Society, in pursuance of your instructions, have had repairs made upon the burial lot of Dr. Caleb Fiske in Scituate, and arrangements made for its proper upkeep.

Under the able chairmanship of Dr. Pickles, the Committee on Library has initiated a cataloging of the volumes in our Library which will greatly enhance the Library's great resources for reference. The nucleus of the funds for this purpose was made available by the Council voting the money returned to the Society by the Committee on Clinical Conferences at the conclusion of the Conferences.

Respectfully submitted,

J. W. Leech, *Secretary*

Rhode Island Medical Society

Annual Meeting, June 1, 1933

The 122nd annual meeting of the Rhode Island Medical Society was held Thursday, June 1, 1933, at the Medical Library, and was called to order at 10 A. M. by the President, Dr. N. Darrell Harvey.

The minutes of the March meeting, and of the annual meeting of the Council, and of the House of Delegates, were read and approved.

Dr. George G. McGregor of Concord, N. H., was present as the delegate from the New Hampshire Medical Society.

Dr. Pickles, secretary of the Fiske Fund, read the annual report of the Fund. The Trustees voted not to award a prize in connection with the essays on "Female Sex Hormone" which was the subject for the contest for 1932-33. They also voted to award a prize of $250 for an original essay on the subject, "Appendicitis—Diagnosis, Treatment and End Results," for 1933-34.

A list of the deceased members was read by the Secretary and the President called for an interval of silence in respect. A further report on the deceased members will be made by the Committee on Necrology, Dr. Herman Lawson, chairman.

On motion by Dr. Skelton, duly seconded, it was voted that the Secretary be instructed to send a message of greeting to Dr. Jesse E. Mowry, Treasurer, who on account of illness was unable to be present at the annual meeting. The following telegram was dispatched to Dr. Mowry.

"The Rhode Island Medical Society at its 122nd annual meeting held today by unanimous vote send you greetings and best wishes for your speedy recovery."

Program

Papers:

1. "Diagnosis and Treatment in Two Children Where a Question of Epilepsy is Raised," Dr. Harold F. Corson, Providence. Discussion by Dr. Charles Bradley.

2. "Congenital Syphilis," Dr. Max J. Exner, The American Social Hygiene Association, Inc., New

York City. Discussion by Dr. V. J. Ryan and Dr. J. E. Kerney.

3. "Acute Tracheo-Bronchitis in Children," illustrated with slides and moving pictures, Dr. Lyman Richards, Boston. Discussion by Dr. H. Utter.

4. "Estimation of and Methods of Meeting Surgical Risks and Post-operative Complications of Diseases of the Biliary Tract," Dr. F. V. Hussey, Providence. Discussion by Dr. J. W. Keefe.

Luncheon was served in the Medical Library building at 1:30 P. M., and the meeting reassembled at 2:10, and the following papers were read and discussed.

During the noon intermission the Fellows had an opportunity to inspect in the Reading Room the exhibit arranged by the producers of certified milk, and also the exhibit of charts, grafts, and literature of the American Social Hygiene Association in the Auditorium.

1. "Complete Heart Block in Young People," Dr. Clifton Leech, Providence. Discussion by Dr. F. T. Fulton. (Slides.)

2. "Arthritis," Dr. Ralph Pemberton, Philadelphia. (Slides.) Discussion by Drs. DeWolf, Burgess, G. S. Mathews.

3. "Abdominal Emergencies in Infancy and Childhood," Dr. Henry W. Hudson, Jr., Boston. Discussion by Dr. Chas. O. Cooke.

4. "The Use of Diuretics in the Treatment of Renal and Cardiac Edema," (Lantern Slides) Dr. Marshall N. Fulton, Boston. Discussion by Drs. Burgess and Wells.

Dr. N. Darrell Harvey then presented the annual presidential address.

Dr. Chas. S. Christie, newly elected President, Dr. Albert H. Miller, First Vice President, were inducted into office. Dr. Roland Hammond, Second Vice President, was unable to be present on account of illness.

Dr. Christie in accepting the office called attention to the fact that the last time Kent County had furnished a president was at the election of Dr. Job Kenyon in 1882, and on his own behalf and on the behalf of the Kent County Medical Society thanked the Fellows for the honor conferred.

The meeting then adjourned to reassemble at the Squantum Club for the annual dinner. The anniversary chairman was Dr. Arthur T. Jones. The speaker was the Hon. Richard Washburn Child, former Ambassador Extraordinary and Plenipotentiary to Italy, who spoke upon "One Hundred Days of the New Deal."

Adjourned.

Respectfully submitted,

J. W. Leech, M.D., *Sec'y.*

The Secretary presented the report of the Council meeting held just previous to this meeting, and the House of Delegates voted to approve and adopt the Treasurer's report as read.

It was moved by Dr. Brown and seconded by Dr. Chase that the offer of Dr. Leonard to have the setting up of the type of the list of Fellows done at his own expense be referred to the Committee on Publication. Dr. Skelton moved an amendment to the motion that the Committee on Publication be given full power to act; seconded by Dr. Gilbert, and the amendment was adopted. After which the original motion as presented by Dr. Brown was also adopted.

Adjourned.

Respectfully submitted,

J. W. Leech, *Secretary*

REPORTS OF COMMITTEES

The reports of the following committees were read and accepted.

Committee on Costs of Medical Care

The Committee on Costs of Medical Care appointed by the President of the Rhode Island Medical Society desires to present a preliminary report on its work.

The majority report and minority reports of the National Committee on the Costs of Medical Care have been studied and various local plans have been considered, some of which have been put into actual operation and some of which have been only formulated.

Any scheme has to be adapted to local requirements. Committees similar to your Committee are at work in many parts of the country. Some of these committees believe no workable plan can be evolved, but others have made plans that are in operation and in some instances have proved satisfactory. Your Committee is not yet in a position to give a definite answer to all the questions presented. It does feel certain, however, that any plan, to be ultimately productive of good and continuously to

improve the standards of medical care, must include the physicians in the plan and not stop simply at hospitalization of the patients.

To make a plan feasible that will include physicians, your Committee believes some standardization of fees must be attempted, and to do this it would be necessary to classify the members of the Society into groups whose status as to qualification for practice in the various lines of work should be stated.

One of the difficulties of the lay public is to know the proper physician to engage. Now, even physicians may be at a loss to determine accurately the qualifications of another member of our Society. Therefore, for the first step in any program, your Committee recommends that the President of the Rhode Island Medical Society appoint a Board of nine members, including the President, the first Vice-President and the Secretary ex-officio, whose duty it shall be to classify each and every member of this Society under the following headings:

1. General Practitioners.
2. Internists.
3. Pediatricians.
4. Neurologists.
5. General Surgeons.
6. Orthopaedists.
7. Urologists.
8. Gynaecologists.
9. Anaesthetists.
10. Eye, Ear, Nose and Throat Specialists.
11. Roentgenologists.
12. Obstetricians.
13. Dermatologists.
14. Pathologists.

This Board of Classification shall be empowered to formulate the standards for the classification.

It is recommended that the members of the Board of Classification be appointed as follows:

Two for three years, two for two years, and two for one year and thereafter two each for three-year terms.

The Committee shall have full power to act, and its duties shall include classification and publication. It is further recommended that no member of your present Committee be appointed a member of the Board of Classification except the President and Secretary, who would be members ex-officio.

It is the intention of your present Committee to continue its study and if possible formulate a scheme which under the control of the Rhode Island Medical Society shall provide adequate medical, nursing and hospital care to families in the income group say between $1,200 and $3,000. Such a scheme would not include Workmen's Compensation cases, contagious diseases, mental diseases, venereal diseases or tuberculosis. Such a scheme must include the right of every patient to choose his own physician.

Studies have been made which show that the average yearly cost of medical care per capita in the United States is about $30.00. Further it has been shown that 29.8% of this is paid physicians in private practice and 23.4% to hospitals, the remainder being paid nurses, pharmacists, etc. This makes the expense for physician and hospital $16.00 per capita. On such a basis of facts it would seem possible for the Medical Society to devise a plan by which it could undertake to care for a group of 5,000, or better, 10,000 persons in the income group where illness is likely to be a catastrophe.

In a family of three with an income of between $1,200 and $3,000, a cost of $48.00 to $60.00 per year for assurance of adequate medical care would not seem excessive. To devise such a plan requires study of the facilities in any community where it may be applied. Further, certain safeguards, as the personal payment for first calls must be set up. Also, the period for which hospital facilities would be supplied must be studied.

The Committee considers the problem presented as being possible of a satisfactory solution and has presented the above facts to suggest the line on which it is working. At present our one and only recommendation is as stated above: namely, that a classification be made of all members of the Rhode Island Medical Society.

Respectfully submitted,

MURRAY S. DANFORTH

Committee:

MURRAY S. DANFORTH, *Chairman*
WALTER C. ROCHELEAU
C. S. CHRISTIE
HALSEY DEWOLF
HERMAN C. PITTS
PRESIDENT AND SECRETARY ex-officio

It was voted to accept the report and adopt the recommendations of the Committee.

Annual Report of Committee on Library

Two hundred and seventy-seven volumes have been added to the main collection of the Library during the past year. Of these, one hundred and twenty-nine have been given to the Library by individuals, institutions, publishers and the various governmental units, and these gifts have been duly acknowledged. One hundred and forty volumes have been added to our invaluable collection of bound journals, the funds for this purpose coming largely from a donation by the Providence Medical Association. The remaining volumes have been acquired by purchase and exchange. At the Annual Dinner last year, Dr. John Fulton chided us for our miserliness in possessing seven copies of William Beaumont's classical work, "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." This remarkable piece of clinical investigation made possible by a curious accident was first published exactly one hundred years ago, and investigation disclosed that our hoarding was even more serious than had been suggested, for we possessed three copies of the first edition, four of the second, and one of the third. One copy of the first edition has now been exchanged for an almost perfect two-volume copy of the first edition of Morgagni's "De Sedibus, et Causis Morborum," published in Venice in 1761, and the committee hopes to enrich our collection further by similar exchanges. One hundred and ten current journals have been received regularly throughout the year.

The report of the Committee last year stressed the need of classifying and cataloguing the Library. I am happy to report that funds for this purpose have been received as follows:

Dr. John W. Keefe	$100.00
Fiske Fund Trustees	74.80
Dr. Guy W. Wells	12.50
Dr. Nat. H. Gifford	12.50
Dr. Wilfred Pickles	12.50
Clinical Conference Fund	881.82
	$1,094.12

The Committee gratefully acknowledges all these gifts and has engaged Miss Helen Moffitt to assist Miss Dickerman in carrying out the work as recommended.

The increasing congestion of automobiles about the Medical Library Building constitutes a very distinct obstacle to its proper use by members of the Society, as it is frequently impossible to park a machine within several blocks of the Library. This condition is brought about largely by the permission of all-day parking in the vicinity of the building. Many of the members of the Society are seriously incommoded daily by regulations aimed at such all-day parking in the vicinity of their homes and offices, and it would seem only fair to have similar regulations imposed in this area so that we may have convenient access to the Library. The Committee recommends that the responsible officers of the Society consult with the proper officials so that this condition may be remedied.

The thanks of the Committee are again expressed to Miss Dickerman for her willing and faithful service.

Respectfully submitted,

Wilfred Pickles, *Chairman*

Annual Report of Committee on Medical Expert Testimony

Your Committee on Medical Expert Testimony desires to report that since its appointment it has, in co-operation with a similar committee of the Rhode Island Bar Association, held several meetings during which the problem of medical expert testimony was discussed. In addition, your Committee has collected and studied a very considerable mass of printed material having to do with medical expert testimony. This material comes from widely different sources and embodies the opinions and recommendations of many men, societies and committees who have given their attention to the problem raised by medical expert testimony. In the very beginning of its work your Committee was immediately impressed by the complexity of the questions which are and can be raised concerning the activities of physicians in medico-legal matters. In contrast to what may perhaps be the common view, it has been discovered that to formulate judgments and recommendations as to medical expert testimony will require more time than your Committee has been able thus far to give. There are so many conflicting opinions and suggestions to be assimilated, that while your Committee can report progress, it will require a little further period of time before it will be able to report the final results of its deliberations. Accordingly, it desires to ask of the House of Delegates some further extension of its patience. At the conclusion of its work your Com-

mittee hopes to offer a report which it trusts may help to clarify, in some degree at least, the complex problems surrounding medical expert testimony.

Signed,

JOHN E. DONLEY
CHARLES F. GORMLY
ROLAND HAMMOND

(Report accepted as progress, and committee continued.)

ANNUAL REPORT OF COMMITTEE ON LEGISLATION

Public Health Legislation, 1933
Annual Report of the Legislative Committee of the Rhode Island Medical Society

During the past session of the State Legislature very little medical legislation was passed. Several bills were presented, died in Committee and were not even printed, such as House Bill No. 837, Act regulating the practice of medicine. House Bill No. 860, Act creating a Board of Examiners in the basic sciences of the healing art—this bill was similar to that introduced last year by the Rhode Island Medical Society through its Legislative Committee. Again this bill was read and referred to the Committee on Finance, where it died. Another important medical bill, Senate No. 80, Substitute A, an Act to provide for liens in favor of charitable hospitals furnishing treatment and care to persons injured in accidents upon the rights of action of such injured persons against other persons or corporations through whose fault or neglect such injuries are alleged to have occurred—this bill passed the Senate on April 20th, but at the close of the session was still in the files of the House Corporations Committee. It might be said that considerable time was spent by the Legislative Committee on Senate Bill No. 80 and House Bill No. 860. There were three or four other rather unimportant medical bills introduced in either the Senate or the House, which also died in Committee. There was one bill, House Bill No. 608, introduced by Mr. Sandager of Cranston, an Act in amendment of Section 3 of Chapter 1962 of the Public Law, 1932, entitled an Act in amendment of Sections 2, 9, and 10 of Chapter 167 of the General Laws, entitled "Of Medicines and Poisons" which was passed by the Senate and in the last hour of the final night rushed through the House. This Act stated that on or before June 30, 1933, the State Board of Pharmacy might register as a registered pharmacist, and upon payment of $2.00 might issue a certificate of registration as a registered pharmacist to every then registered assistant pharmacist or who was registered as such on December 31, 1932. A storm of protest arose on all sides from the Board of Pharmacy, the State Medical Society and innumerable individuals. The Governor was asked to consider very carefully this Act before his signature. Finally on April 26th he stamped his disapproval on the Act. In explanation, Governor Green said that this Act lowers the standard of training in the State of Rhode Island. It allows assistant pharmacists, before being registered by the College of Pharmacy, to compound prescriptions without supervision. Therefore it endangers the health and safety of the community by removing a needed safeguard.

The following bills were passed:

Senate Bill No. 184, an Act in amendment of an Act entitled "An Act to incorporate the Osteopathic Hospital of Rhode Island," passed at the January session, 1931. This Act names the incorporators who shall manage and supervise the activities of this hospital.

Senate Bill No. 143, an Act to validate an appropriation of six thousand six hundred dollars made by the Town of Bristol at its financial town meeting held March 13, 1933. This Act appropriated some of this money for the Nursing Association, Colt Memorial Ambulance Fund, Red Cross work in the town of Bristol.

Senate Bill No. 142, an Act in amendment of Section 1 of Chapter 166 of the General Laws, entitled "Of the registration of births, deaths and marriages." This Act states that local registrars shall, on or before the 20th day of each month, make a copy of births, deaths and marriages as the Public Health Commission shall require in record books for preservation. These books shall be permanently kept in the office of said Registrar or Town Clerk. The original certificate shall be sent each month to the Public Health Commission.

Senate Bill No. 160, Act authorizing the town of Tiverton to make an annual appropriation to promote public health and nursing service in said town and validating an appropriation heretofore made.

Senate Bill No. 875, Resolution for payment of sundry accounts. (Providence Floating Hospital Association, refund of gasoline tax, $8.02.)

Respectfully submitted,

HERBERT E. HARRIS, *Chairman*

Annual Report of Committee on Publication

Mr. President and Gentlemen:

The past year has not been one of prosperity, nor has it, considering the economic conditions that prevail, been one of any great financial tribulation.

As the years go by, our literary contributions are constantly increasing, showing an added interest of our readers and a gratifying willingness on the part of our Fellows to help make our Journal of more scientific interest.

While having no bearing upon our publication affairs, perhaps the outstanding event was our annual dinner which was attended by Dr. E. H. Cary, of Dallas, Texas, President of the American Medical Association, which I regard as a distinguishing honor. This dinner was well supported by our members and guests, about 160 attending. While we had to make good quite a considerable deficit, we feel amply repaid by the honor of the President's visit. I have since received a letter of thanks from this gracious gentleman in which he expressed an appreciation of many courtesies extended to him and of his pleasure of having been able to attend.

We are not encumbered by debt and are still on the safe side of the ledger.

Respectfully submitted,

Frederick N. Brown,
Chairman

Annual Report of Committee on Education, State and National

Your Committee on Education, State and National, hereby respectfully submits the report of their activities for the year 1932-1933.

In the pursuance of the policy of the previous years, your Committee has sponsored, in the name of the Society, a series of weekly radio broadcasts on health subjects. Following the recommendation of the previous Committee, we changed the hour of broadcasting from 6:00 P. M. to 1:00 P. M. This allowed us more time for our speakers, and coming immediately after the News Flashes at noon, gave us a very good radio audience.

We wish to accord the thanks of the Society to the Outlet Company, which, by contributing the radio time, made these broadcasts possible. We also wish to thank Mr. Boyle, the manager of the broadcasting station, for his courtesy and co-operation.

Twelve health talks were given, beginning January 11th and ending with the week of March 29th. These talks were given by members of our Society, all qualified to speak in their respective fields. The talks were all well prepared, the speakers very co-operative in appearing on time, and the whole program went off very smoothly. We have placed duplicate copies of the talks on file in the Medical Library for further reference. Numerous letters were received by the Chairman of the Committee, commenting favorably on the talks, many of them asking for reprints. Of course, no reprints are available for distribution, and the names of the lecturers, according to our policy, were withheld.

One other matter was brought to the attention of the Committee during this past year for its consideration. This consisted in a request from the school authorities of Providence High Schools that the Medical Society co-operate with them and share the expense of publishing a pamphlet on the subject of nursing. This pamphlet was carefully reviewed by this Committee and a recommendation made to the Council and House of Delegates that a sum of $50.00 be appropriated as the Society's share in this undertaking. This recommendation was acted upon favorably and the appropriation made. For the details we refer you to our report submitted to the Council.

We feel that the radio broadcasting feature should be continued by the Society in the succeeding years; that there is a need for this publicity which is shown by the public response; and that the Society can do much toward helping the public and winning their confidence through this means.

Respectfully submitted,

George W. Waterman,
Chairman
Robert R. Baldridge
Charles L. Farrell

Curator—not present.

Annual Report of Committee on Necrology

The following members have died during the year 1932-1933: Dr. C. R. Barden, Providence, died January 29, 1933; Dr. H. A. Cooke, Providence, died March 17, 1933; Dr. R. F. Duncan, Providence, died December 9, 1932; Dr. Gilbert Houston, 2nd, West Warwick, died February 21, 1933; Dr. C. J. Mahoney, Providence, died January 3, 1933; Dr. F. T. Rogers, East Greenwich, died August 28, 1932; Dr. Raynor Woodhead, Valley Falls, died April 11, 1933; Dr. W. A. Risk, Washington, D. C. (Non-resident), died May 2, 1933; Dr. W. W. Keene (Honorary), died June 7, 1932.

H. A. Lawson, *Chairman*

Further Committee Reports continued in a future issue.

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THE N.Y. ACADEMY OF MEDICINE
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ORIGINAL ARTICLES

DIABETIC COMA*

By ALEX. M. BURGESS, M.D.

454 ANGELL STREET, PROVIDENCE, R. I.

The end of the diabetic, untreated, is coma. In spite of all modern treatment the essentials of which you have heard set forth, the diabetic, armed with the best of intentions, the most conscientious care in his diet and a fund of ready information as to the emergencies that may lie in his path, still senses above him the Damoclean sword of acidosis, which at times he cannot avoid. Circumstances over which he may have no control, such as, for example, the onset of influenza or pneumonia, or a serious accident, may nullify all precautionary measures and bring it about that the outcome depends no longer on his own efforts but on the skill and resourcefulness of the physician and the nurse. Although the incidence of coma is less than formerly, it is by no means infrequent, and its early recognition and prompt treatment constitute one of the truly spectacular and worthwhile achievements that can be accomplished by the medical man. Our recent experiences at the Rhode Island Hospital in this field have convinced us of two things—first, that in treating coma we can, in cases recognized early and treated with promptness and sagacity, expect strikingly favorable results; and second, that in carrying out this treatment we are always treading on thin ice and disaster can, and occasionally does, occur.

The main causes of coma still are, according to Joslin, "ignorance and folly." Nevertheless, as has been intimated, the diabetic who is neither ignorant nor foolish may still be precipitated into the condition by the onset of an infection. It is this factor which makes many cases impossible to treat successfully, but here, as elsewhere, the early recognition and treatment of the condition may be decisive.

The differential diagnosis of coma is usually, but by no means always, easy. In practice the two conditions which give the most trouble in differentiation are insulin "shock" and the "acute abdomen." Insulin shock is often distinguishable from the history of abrupt onset, less than an hour—coma is always of gradual development, hours to days. In insulin shock the skin is ordinarily moist and pale, in coma dry and flushed. In insulin shock the pulse is full and the respirations normal or shallow, in coma the pulse is weak and rapid and the respiration full and deep, the so-called Kussmaul breathing, unless the condition has progressed to terminal exhaustion of the respiratory center. Convulsions are common in insulin shock, rare in coma. When in doubt, glucose may be given intravenously and will usually terminate insulin shock abruptly.

The second condition often confused with diabetic coma, actual or impending, especially in children, is acute inflammation within the peritoneal cavity. If one remembers that abdominal pain, leucocytosis and a generalized rigidity of the abdominal muscles are common symptoms of severe diabetic acidosis, the difficulty is quite apparent and at times, while it is quite easy to recognize the acidosis, it is impossible to say that an intra-abdominal lesion does not also exist. Under these conditions the acidosis should be vigorously treated and the abdominal symptoms, if due to this cause, will promptly subside.

In considering treatment, the most important single factor is that of the time when the condition is recognized and the treatment commenced. By way of further emphasis on the time factor, one may say that it makes much more difference what happens during the first hour of treatment than in the next eleven hours, though we may be on thin ice for even a day or more. In a nutshell, the things that we have to prevent and correct, with the main means of accomplishing these ends, may be listed as follows:

1. *Ketosis* (or diabetic acidosis). By insulin, fluids and at times glucose, subq. and intravenously.

2. *Dehydration.* By saline and glucose solutions, subq. and intravenously.

3. *Heat loss.* By heaters, blankets and hot drinks.

4. *Gastric dilatation.* By lavage and enemata.

*Read before the Providence Medical Association, April 3, 1933.

5. *Circulatory collapse.* By various stimulants, caffein, coramine, adrenalin, etc.

6. *Renal block.* By normal saline, hypertonic saline or dextrose solutions, intravenously.

For the first hour Joslin recommends for the average case insulin 100 units partly intravenously in the severer cases, heaters and blankets, gastric lavage with great care, using the Levine tube in many instances, fluids as follows: 500 cc. normal saline intravenously and 1000 cc. subpectorally—as well as hot broth by mouth if the patient can take it. After the first hour 20 to 50 units of insulin every half hour controlled by repeated blood sugar estimations. Also ginger ale and orange juice by mouth. We believe that where frequent blood sugar estimations cannot be made it is advisable to add glucose 20 to 40 gm. to the fluid administered intravenously and to give it later on either subq. or by mouth in the form of orange juice or ginger ale, so that the recovery from the ketosis shall be more rapid than the recovery from the hyperglycaemia and a dangerous lowering of blood sugar thus avoided.

Joslin states that unexplained circulatory collapse remains the most serious problem in treatment. He mentions five such cases as occurring among the last 74 cases of coma treated in his clinic. In the last twelve cases of coma seen at the Rhode Island Hospital this condition occurred twice and led to rapid exitus in both instances. The first of these patients, a girl of 16 years, a known diabetic of three years standing, entered the hospital in deep coma apparently precipitated by an upper respiratory infection. The pulse was 160 and weak, the blood pressure 80/0 as far as it could be estimated, the respirations of the Kussmaul type, and the initial blood sugar reading was 666. She had been in coma four hours before admission. Following the usual treatment in which 1000 cc. of saline were given intravenously and 50 units of insulin, the patient roused and asked for a drink of water and then she suddenly became pallid, unconscious, cyanotic and pulseless, and in five minutes she was dead. Post mortem blood sugar was 533 mg.

The second case in which this condition occurred was a boy of 11 years in which diabetes had not been recognized up to the time of the onset of coma. He had been suffering, as had other members of his family, from an acute tonsillitis. During the 24 hours previous to admission he had shown a stupor gradually deepening into coma, and glycosuria and ketonuria were found by his family physician. On entrance the temperature was 99 and later rose to 103. Pulse was 140 per min. and respirations 30 and of the Kussmaul type. Blood pressure was 82/10. Treatment included 500 ccs. of intravenous saline solution, insulin 45 units as the initial dose, enema, heaters, etc. After four hours, during which the usual coma treatment was continued, he vomited a large amount of reddish fluid, strongly positive for occult blood, collapsed and died. In both these instances one wonders if the presence of an acute upper respiratory infection with its associated toxaemia may not have been the determining factor causing the sudden collapse.

Of the last twelve cases of coma on record at the Rhode Island Hospital, these two and three others died. Two of the remaining deaths were beyond a doubt unavoidable. One patient was admitted evidently in the final stages of coma where relief could not be expected, and the other was a 76-year-old man whose coma developed in the hospital following an amputation for an infected leg and gangrenous foot. The fifth death following coma is more important for our consideration. This patient, a seven-year-old boy, was rescued from profound coma by the usual methods only to die on the fourth day in an attack of unconsciousness with pulmonary edema, the typical picture of hypoglycaemia. This child had received 305 units of insulin in the first 24 hours. On the evening of the third day in the hospital he was found unconscious, was brought back by administration of glucose. At 12:30 A. M. he again became unconscious and was again brought back, but a third attack of unconsciousness proved resistant to both glucose and adrenalin injections and the patient died. The blood sugar was found to be 40 mg. during the final attack.

The seven other coma patients recovered under treatment in spite of the fact that four of them were associated with severe infection, one with advanced pulmonary tuberculosis and one was an 85-year-old senile, arteriosclerotic man. From our experience in these and other cases seen at the hospital, we can say that treatment along the lines that have been mentioned must be given with promptness and vigor, a favorable outcome will usually result, but that in some instances it is impossible. Following the recovery from the unconscious state the possibility of subsequent hypoglycaemia must be kept in mind and that at any time fatal circulatory collapse is to be feared.

DIET IN THE TREATMENT OF DIABETES

By Dr. Herman A. Lawson
454 Angell Street, Providence, R. I.

In speaking to one of our members a few days ago, he referred to the subject of this evening's talk as that "hardy perennial." This is a very apt description, for the subject of diabetes crops up every year to claim our attention. Nevertheless, this old, familiar perennial has shown some very interesting variations and changes in the past few seasons. Moreover, diabetes is one of the most common diseases which the physician encounters and it is, in addition, an important cause of death and disability and for that reason we are perhaps justified in taking your time and thought tonight.

In the treatment of diabetes, diet is of first importance, and in the dietary treatment the most important single factor is undernutrition. Nothing has changed these conceptions, not even the introduction of insulin.

Nevertheless, fashions in prescribing diets change from time to time and there have been very important changes in the past five years. The modern method of diet prescription can be briefly summarized by saying that we have turned away from the highly abnormal, high fat diets, and are trying to prescribe diets which more closely approach the normal in that we keep the fats at a low level and give a much higher content of carbohydrate. Let us look for a moment at the chart which contains examples of several diets. I have outlined first the average normal diet for a man of 150 lbs. doing moderate work. You will notice the high carbohydrate content—400 grams. Almost all normal diets approach this figure or exceed it. The amount of protein varies, depending on whether or not the individual is fond of meat and other protein foods. The same is true of fat—some people are extremely fond of butter and cream and consume large amounts. But this example of a normal diet brings out the important fact that all normal people eat large amounts of carbohydrate, from 400 to 500 grams. Immediately below this normal diet I have put a high fat diet which was prescribed by Dr. Newburgh in 1929. The difference in these two diets is very striking. The normal person consumes 14 or 15 times as much carbohydrate as is allowed in this high fat diet, and would probably eat only two-thirds or one-half as much fat. You can readily see what a grossly abnormal diet this is and I believe you can well imagine how distasteful it would be to most of us. Immediately below this high fat diet I have given three examples of high carbohydrate diets which represent the modern tendency in the treatment of diabetes. Note carefully that although the carbohydrate allowed by Rabinowich is ten times that prescribed by Dr. Newburgh, nevertheless the total calories in Rabinowich's diet are less than the calories in Newburgh's diet. Dr. Rabinowich, in spite of his very high carbohydrate diet, still adheres to the principle of undernutrition. Fortunately the patient is able to remain sugar-free and needs no increase in insulin when changed from high fat to high carbohydrate diet. Richardson has shown that one can change abruptly from high fat to high carbohydrate without causing the appearance of sugar in the urine or a rise in blood sugar, and without necessitating any increase in insulin dosage. This is possible because when we make this change we still follow the principle of undernutrition—indeed, the total caloric intake for the day is usually less in high carbohydrate than high fat diets.

I think these figures make it easier for you to decide which of these two diets you would choose. I am sure you would select and prescribe Dr. Rabinowich's diet, even though the calories are somewhat less than in Newburgh's diet. What does the difference mean in the actual daily life of the patient? What specific difference does it make in his meals each day? In the first place, on the high fat diet the patient was allowed for the whole day one generous serving of green vegetables and one small serving of fruit, but absolutely no other form of carbohydrate food. The rest of the diet was made up of very large amounts of cream and butter, salad dressing, bacon and five or six eggs. The patient was never allowed crackers, cereal, milk, bread or potatoes and only very small amounts of fruit and vegetables. I am sure that you will all agree that such a diet would be exceedingly monotonous and because of its marked variation from the normal would cause a great craving for meat and particularly for the carbohydrates which we all eat in large amounts. It is also lacking in minerals because of low content of fruit, vegetables and milk. In contrast to this Rabinowich's diet provides:

Generous servings of fruit for each meal.
Cereal.
At least 1 pint of milk daily.
2 or 3 slices of bread daily.
4 oz. potato.
2-3 oz. meat.

I think this brings out the important and striking difference in the diets of yesterday and today — a yesterday in the very recent past. These high fat diets are still prescribed today by men who sincerely believe in their merits. Nevertheless, one great disadvantage of and objection to these high fat diets is the fact that they deviate so markedly from the normal diet that it is a great hardship for many patients to follow such a diet conscientiously from day to day. There are other facts in favor of high carbohydrate rather than high fat diets. I will not attempt to name them all or to offer evidence in support of them, but briefly to refer to some of the more important. (1) It has been claimed and definite evidence has been brought forward to show that an increase in fats and marked reduction in carbohydrates impairs the carbohydrate tolerance. The patient loses more and more the ability to burn carbohydrate. It has been shown that placing a normal person on a high fat diet reduces his sugar tolerance. (2) In countries where diets consist largely of carbohydrates, diabetes, when it exists, is usually mild. Diabetes is most frequent in countries in which the per capita consumption of fat is greatest. (3) Joslin has pointed out that the diet of those diabetics who have lived the longest, whether they showed sugar or not, were those whose carbohydrate was never long reduced to a low quantity. (4) Both diabetics and normal individuals can work much more efficiently by using carbohydrate as fuel. It has been demonstrated in the laboratory that experimental normal individuals develop fatigue much more rapidly when on a high fat diet. (5) Acidosis develops much more readily and rapidly in patients on a high fat diet. Patients on such a diet almost constantly have a mild acidosis so that we can detect acetone in the urine and a strong acetone odor on the breath. Moreover, it has been demonstrated that the easiest way to produce experimental coma in dogs is to suddenly withdraw insulin from a diabetic dog who is liberally nourished with fat. (6) High fat diets are expensive. (7) It is just as easy to keep sugar free and to keep blood sugar within normal limits in high carbohydrate diet—in other words, the high fat diet does not make it easier to control diabetes. (8) One of the helpful things the high carbohydrate diet has done is to eliminate the necessity for accessory food factors like bran muffins and bran wafers and such things as gluten bread. (9) Perhaps the most important objection to a high fat diet is the possible or theoretical relation to the development of cardiovascular disease with all of its complications. Joslin has summed up his antipathy to high fat diets as follows: "With an excess of fat diabetes begins and with an excess of fat patients with diabetes die, formerly of acidosis and now of arteriosclerosis." There is a great deal of theoretical evidence that high fat diets which produce a high blood cholesterol may be a very important cause of the high incidence of arteriosclerosis from which diabetic patients today die in considerable numbers. Indeed, degeneration of the blood vessels constitutes the greatest menace to diabetics today. This is the most important objection to high fat diets. During the next five or ten years we shall have more than armchair evidence to tell us whether or not high fat diets with high blood cholesterol have been a factor in causing the universal tendency to arteriosclerosis in diabetics of any age. The increasing death rate from diabetes is found in people of middle life and beyond, and in these patients it is not acidosis and coma which causes death but the sad train of complications which result from arteriosclerosis. If the high carbohydrate and low fat diets will reduce this tendency to arteriosclerosis, we shall have made a very important advance in the treatment of the disease.

If we accept the theory that high carbohydrate diets are better than high fat diets, we ought, of course, to attempt to give our patients the benefit of such diets. In order to accomplish this it will be necessary to prescribe all diabetic diets in definite, specific terms in which every item is measured either by weight or by household measures, so that the exact consumption or total daily intake of carbohydrate, protein and fat is known and so that we may control the patient's daily caloric intake. The physician cannot prescribe such diets unless he learns the approximate composition of all common food stuffs. It is very unsatisfactory and very unscientific to treat diabetes by prescribing dietary restrictions in general, indefinite terms. So often patients are advised that they must give up sweets and starches and make their diet of green vegetables, meat, eggs, and gluten bread, etc. Unless the diabetes is exceedingly mild, such treatment will accomplish very little. The patient will have no idea of how much he may eat of the foods allowed. He will not become sugar free unless he reduces his total caloric intake, even though he cuts carbohydrate down to a very low level. Eating unlimited

amounts of gluten bread will cause him to show sugar in the urine almost as certainly as eating white bread. Moreover, such a diet is essentially a high fat and high protein diet, and I have already enumerated a number of objections to such a diet. The doctor must teach the patient that there is no food which he can eat in unlimited amounts. If he chooses to prescribe gluten bread, he should tell the patient exactly how many slices he may have. It is the doctor's business to dispel such superstitions as that which holds that dark bread is all right for him to eat and white bread harmful.

The patient's welfare depends on his own knowledge of all things pertaining to this disease. The doctor must teach himself in order that he may teach his patient, for the education of the patient is one of the most important duties which the physician must perform in the treatment of diabetes.

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INSULIN — ITS USE IN DIABETES MELLITUS*

By Louis I. Kramer, M.D.

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Ever since Lepine[1] inferred that the pancreas excreted a glycolytic ferment which was responsible for sugar metabolism, and the failure on the part of that organ to excrete such a hormone resulted in diabetes, medical men have attacked this problem with greater zeal and enthusiasm. The culmination of these efforts ends with the discovery of insulin by Banting and Best in 1921-1922—one of the greatest achievements in medical science. For, truly, insulin has not only saved and is continuing to save thousands of lives, but has transformed chronic diabetic invalids who were always an economic liability to an economic asset. No longer are children doomed to die from this disease in their early childhood, but, on the contrary, are enabled to grow, develop, and lead as useful an existence as any normal child.

Because of the tonic effect of insulin, its use has been extended to many varied conditions, particularly that of undernutrition.[2] Its greatest usefulness, however, is in treating diabetes. Here we have a definite need for insulin, because the immediate cause of diabetes (hyperglycemia and glycosuria) is insulin deficiency, and by supplying the deficient factor the condition can be kept under control. The successful management of a diabetic at present obviously depends upon the intelligent use of diet and insulin.

Insulin is measured in terms of units. Originally a unit of insulin[3] was defined as that amount which would lower the blood sugar of a rabbit weighing two kilograms to the convulsive level within four hours. This was later modified to the extent that the animal was deprived of food for 24 hours. Because of the normal human variations in carbohydrate metabolism, a clinical unit was established which is a third of the amount of the original unit.

The carbohydrate equivalent, however, is measured in terms of number of grams of glucose each unit of insulin causes to metabolize. This deduction is not entirely in accord with our present conception. The insulin coefficient varies with different individuals, depending on the type of diet one is on and the amount of insulin one takes. Low carbohydrate, high protein and fat diets have a tendency to lower the carbohydrate equivalent, while high carbohydrate, low fat diets,[4,5] and keeping the protein down to low normal level, tend to increase this property of insulin. Of course, the total calories per day must be kept to a little below the basal level to get most out of insulin therapy. Geylen[6] has been able to show a carbohydrate equivalent of 27 grams per unit of insulin on the high carbohydrate, low fat

*Read before the Providence Medical Association, April 3, 1933.

diets in some instances. Again, large amounts of insulin in a given patient show a lesser glucose equivalent curve than smaller amounts in the same subject. This deduction may be attributed to the fact that when large amounts are given a good deal of it probably escapes the body before it has an opportunity to metabolize glucose. For practical purposes, the average glucose equivalent per unit of insulin as determined by Wilder,[7] Boothby, and others, stands at present acceptable. It is 1.45 grams of glucose per unit of insulin, and ordinarily varies between 0.9 grams and 3.1 grams.

Insulin is put up in 5 cc. and 10 cc. vials in five different concentrations, U 10, U 20, U 40, U 80, and U 100. The unit is always the same, the concentration differs. The most popular and most used strengths are U 20 and U 40, and the insulin syringe is graduated for these two strengths. U 80 and U 100 are rarely used by the average diabetic. Of course, if the diabetes is very severe, the daily insulin dosage very high, and the patient intelligent, the higher concentrations may be used with justification. The danger lies in possible insulin reaction, because of the lowered margin of safety.

Insulin is administered subcutaneously and intravenously, preferably subcutaneously. The intravenous route should be resorted to in emergencies only, as in coma where rapid action is of the utmost importance. Attempts to give it by mouth or rectum have met with failure. The inunction method proved to be of little value. The conjunctivae[8] have been resorted to experimentally with some success. Only 40% of the total amount given this way was utilized. It may be given into the arms, thighs, abdomen, and buttocks, but it is well to instruct the patient that he select a different site for each injection. Continuous injections into the same spot usually causes induration. This makes absorption practically impossible. Considerable attention should, indeed, be given to sterilization of the syringe and needle, either by boiling or the use of alcohol. The site of injection, too, should be cared for scrupulously by the use of alcohol and iodine.

Usually insulin is administered one to four times daily, twenty to forty-five minutes before meals, preferably one-half hour before meals. Some[9] feel that to severe diabetics it is best to give the insulin in the following manner. First dose one hour before breakfast, second dose one hour after the noon meal, and the third dose two or three hours after the evening meal. For general use, however, it is much more satisfactory to give it one-half hour before meals. The number of daily injections depends upon the severity of the diabetes, and the dosage of insulin needed to keep the patient sugar free. When one requires more than fifteen or twenty units daily, it is best to give it in two or three doses depending on the patient's reaction to insulin. The severe diabetic invariably has to have three doses daily, and some need an extra midnight dose to show a negative urine test for the entire twenty-four hours. It seems that this type of patient, on three doses, will show a positive evening and early morning test, but clear the rest of the day. If a small dose is given before retiring, the chances are that the urine will be negative throughout the entire twenty-four hours. In our clinic at the Rhode Island Hospital four diabetics are severe enough to need four daily insulin injections to keep them sugar free the greater part of the twenty-four hours.

Some are "Insulin Wasters,"[10] that is, the insulin given subcutaneously acts on them as if given intravenously. Their blood sugar decreases rapidly, but returns to the original high level with equal rapidity. These patients, in spite of their frequent severe hypoglycemic reactions shortly after an evening dose, show a hyperglycaemia and glycosuria the following morning. These patients are advised[11] to take small doses of insulin at frequent intervals, every six hours, rather than in relationship to their meals.

The dosage of insulin depends on the severity of the diabetes, the type of diet, and the total caloric intake. The higher the total caloric allowance the larger the insulin need. The carbohydrate and fat ratio also determines to some degree the insulin requirement. In 1931 the number of patients in the clinic requiring insulin was 164 or 53.5% of the total number of clinic patients. In 1932 the number of insulin patients dropped to 142 or 35% of the total number of clinic patients. We are unable to give a satisfactory explanation to account for this drop, but if we can safely eliminate the possibility that because of the economic depression we are seeing in the clinic a greater number of mild cases, who formerly consulted private physicians, we may rightly assume that the noticeable increase in tolerance is due to the higher carbohydrate and lower fat allowance in our diets. The insulin dosage in our clinic varies from five to seventy-five units daily.

Intercurrent infections completely upset the insulin and diet balance. It seems that an infection either inhibits the action of insulin, or lowers the carbohydrate metabolism, or does both. Mental strain, untreated syphilis, and menstruation have a similar effect on the insulin and diet balance. At times, if the infection is very severe, the patient may become insulin resistant as illustrated by this case:

*Case J. K., male, 48 years old. A mild diabetic of one year duration, and easily controlled by diet without insulin, became very severe and uncontrollable even when given tremendous doses of insulin, because of an infection in his right foot. At the onset of the infection the diabetes was readily manageable on a diet of C. 110 grams, P. 60 grams, and F. 57 grams, with 30 units of insulin daily. On this scheme he withstood successfully an operation of multiple incisions with drainage, under ether anesthesia. The diabetes remained under control for the next 22 days, although the infection continued to spread. Another attempt to check the infection was made, this time under gas oxygen anaesthesia with a small amount of ether towards the end. Following this operation the patient began to run a downhill course. Neither the infection nor the glycosuria could be checked. The diet remained the same, the insulin was increased, at first to 75 units a day, to 240 units a day, and finally to 480 units a day with no improvement. Amputation of the foot under spinal anaesthesia, twelve days following the last operation, as a final attempt to stem the progress of the infection was of no help. The patient developed coma and died four days later. The total amount of insulin for the last eleven days of the patient's life was 2875 units, or a daily average of 261 units. The blood sugar ranged between 200 mg. and 235 mg. per 100 cc. of blood. Blood cultures on two occasions were negative. Unfortunately an autopsy was not obtained. No definite conclusions can be drawn from this one case. However, it is safe to assume that the infection in some way inhibited the expected action of insulin.

The problem, of course, is to determine what type of patient should receive insulin. We feel that every diabetic should have sufficient knowledge and training in the use of insulin. The reasons are obvious. (1) Every diabetic, no matter how mild, may become severe enough to require insulin. (2) Intercurrent infections always aggravate the diabetes to a sufficient degree that the use of insulin may become imperative to escape ketosis. (3) Patients adhere more faithfully to their diets when on insulin. And lastly, a diabetic who is unable to metabolize at least 100 grams of carbohydrate without spilling sugar in the urine should indeed take insulin.

Insulin must always of necessity be injected by the patient or someone in the household who is with the patient or available at the proper time. It is worth while mentioning that abscess formation, because of self injection, even among the most ignorant, is very rare. In our clinic at the R. I. Hospital, we have 142 patients who take from two to four daily injections of insulin, an average of over 400 injections daily, and during the entire insulin period from 1923 to January, 1933, there occurred only three instances of abscess formation—one in a young man, case J. T., age 23, who has been on insulin since 1922—received his first insulin injections at the Peter Bent Brigham Hospital, Boston—a rather severe diabetic, who has to his credit 12 hospital admissions, and is now taking four daily insulin injections; one in a little boy, case R. G., 12 years old, diabetes five years standing, and taking three and four doses daily; and one in a young woman, case E. S., age 37, duration of diabetes three years, takes insulin three times a day. In all the three cases the abscess formation was due to carelessness in sterilizing the syringe and needle.

Like any other drug, insulin has its dangers, and there is reason to believe that many deaths have been precipitated by an overdose of this hormone. It is, however, desirable that every diabetic have some experience with this phenomenon so that he may know what to do when an emergency arises. All our insulin patients are instructed to carry with them a lump of sugar or candy and are advised to use same as soon as one feels a reaction coming on. The symptoms are due to a lowering of the blood sugar which manifests itself in nervousness, restlessness, extreme weakness, light-headedness, and tremor associated with profuse sweating. If the symptoms are allowed to progress, mental confusion, disorientation, and finally convulsions and coma supervene. No two diabetics experience the same early symptoms. It is, therefore, very important that each patient study his own reaction to insulin. One of our patients, E. F., who takes four

(*Continued on page 122*)

*Case, J. K. Private patient, Miriam Hospital. All other cases mentioned are from the diabetic clinic, Rhode Island Hospital.

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J. W. LEECH	*President*	Providence
P. P. CHASE	*Secretary*	Providence

WASHINGTON

Meets the second Wednesday in January, April, July and October

E. E. KENYON	*President*	Kingston
JOHN CHAMPLIN, JR.	*Secretary*	Westerly

WOONSOCKET

Meets the second Thursday in each month excepting July and August

W. A. BERNARD	*President*	Woonsocket
T. S. FLYNN	*Secretary*	Woonsocket

R. I. Ophthalmological and Otological Society—2d Thursday—October, December, February, April and Annual at call of President. Dr. Herman A. Winkler, President; Dr. N. A. Bolotow, Secretary.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October, Dr. Fenwick G. Taggart, President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

NOISE

There now comes the interesting and welcome news that there is to be established in the Health Department of the City of Boston a Noise Nuisance Bureau, and that the Mayor of Boston is inclined to assist this bureau in every possible way. Not long ago there was considerable agitation in Providence regarding what now seems to be a well recognized health measure. A committee was established, electro-acoustic measurements were made in different parts of the city, and members of the city government were approached with the hope that some sort of enforceable bill might be enacted whereby people might be allowed a few noiseless hours in which to obtain the rest and sleep necessary for the maintenance of public and private health. Several articles in favor of the movement appeared in this column.

As near as can be learned this movement died aborning, the committee fell by the wayside as it were, and no bill has been enacted. We still have noisesome whistles, a waterfront that is more noisy than a crowded street, the blare of loud speakers in some of our best streets, and apparently a complete

disregard of the rights and privileges of others. The barking dog still holds forth in the wee small hours and there seems to be no propaganda for the aid of those who from night work must sleep in the daytime. Ours is a very noisy city; much of this noise is necessary, but a great deal of it might be prevented could we only make people decent-minded. Noise is to be classed with filth, odors, smoke and other conditions which, although not immediately disease-producing, nevertheless predispose to it. It will be a distinct step in advance if the committee can be aroused to this important health project. This is particularly pertinent at the present time when the heat will require the opening of windows more liberally, and the good air that comes in through these windows should be as free from noise as of disgusting smells and pathogenic bacteria.

AS TO MEDICAL MEETINGS

The annual meeting of the State Medical Society this year was exceptionally well attended. In fact, the attendance seems to have gradually increased during the past few years.

In looking over the last program of the meeting one can easily discover why the attendance is picking up. The eight papers covered a very wide range of subjects and varied from pure physiology and pharmocology to both medical and surgical subjects of practical importance to the clinician. In addition, five of the papers were read by guests of the Society who are recognized as authorities in their respective fields.

The increasing number who attend these state meetings and particularly the one in June make it necessary to adhere strictly to a schedule in order that those in attendance may allot their own time. The Rhode Island Medical Journal suggests that members of the Society be assured the meetings will positively begin at a certain time and will likewise end at a definitely stated time. A schedule can be adhered to without causing hardship if such a plan is explained to the readers when they are invited. Two of the best attended meetings in New England are run on a definite schedule to which no exceptions are allowed, regardless of the speaker's reputation. If such a policy were adopted by the State Society it would add to the growing popularity of the programs.

GROUP PRACTICE

The comprehensive report on "Private Group Practice" in the United States which has been published in the department of Medical Economics of the Journal of the American Medical Association deserves more than a passing glance from medical practitioners whether or not they are members of "groups." In reading it over one is impressed by two things: first, that the average group offers nothing to the patient that cannot be provided for him as well by the average doctor who avails himself freely of independent specialists and hospital facilities; and second, that the average member of the average group has gained by his membership no material advantage over the average non-member. In addition, it may be stated that the superior group, such as the Mayo Clinic, for example, after which many of the more pretentious combinations have been patterned, itself offers nothing to the patient that cannot be as well provided by the superior practitioner working with superior specialists and hospital facilities. Certainly inferior, poorly trained practitioners or those whose work may be open to criticism as unethical or tending to commercialism are no less a thorn in the side of the public and the profession if gathered into co-operative organizations than if independent.

If, then, we may say that no positive advantages can be justly claimed for the group system, we should also inquire as to the existence of positive disadvantages. One of the first that will occur to us as obvious is the very disadvantageous limitation of choice in referring patients that the group system imposes. The criticism of informal cliques as becoming close corporations and limiting the free passage of patients from one doctor to another, as discussed editorially in the last issue of the Journal, applies with even greater force to the formal groups when by agreement the study of a given patient is limited to members of the group. Outside doctors, generally speaking, find it on this account imperative to prevent their patients from consulting any member of the group. This represents a most unhealthy division of the medical fraternity. Furthermore, the work of the groups generally tends to a greater appearance of commercialism than does that of the individual practitioner, particularly when by the employment of a lay business manager, a most pernicious expedient, they add the fact to the appearance. And finally, in

spite of every effort on the part of conscientious group members to prevent it, the ideal relationship of confidence and friendship between patient and physician is bound to suffer. With the divided medical personality that the patient must face in the group he can hardly be blamed if he doesn't know who his doctor is. On many occasions a pink pill and a kindly word from a wise family physician will do more good than the elaborate and expensive treatment following the multiple elaborate, expensive, often demoralizing and at times useless examinations which the patient visiting a group must undergo (and pay for). The family physician knows that he has at hand in his local hospital with its staff of specialists the means of carrying out all the elaborate investigations needed for the solution of the clinical problems of those for whom this line of procedure is appropriate, and he can also skillfully differentiate those for whom this sort of thing is unnecessary or positively harmful.

Man is a social animal and undoubtedly his best work is team work. That practitioners should form attachments to each other based on mutual confidence and friendship is inevitable and right. That the medical man, for example, should have one or more surgeons to whom he usually refers his patients, *other things being equal,* is also inevitable and right. Nevertheless, if he would do what is best for his patients, as well as for his colleagues and himself, he should strictly maintain an absolute freedom of choice in referring his patients. In this way perfect co-operation between practitioners in the field of general practice and the specialties may be maintained with the preservation of all the advantages and with none of the disadvantages of group practice.

INSULIN—ITS USE IN DIABETES MELLITUS

(*Continued from page 119*)

doses daily, is subject to insulin reactions, but he has never allowed his reactions to progress to a dangerous point except once. About two years ago while he was out walking, he felt a reaction coming on, but before he had an opportunity to reach for a lump of sugar he carries with him, he became confused, irrational, and disoriented. His vision was blurred, his gait staggering, he perspired profusely, and his entire body shook as if he were having a chill. A police officer mistook him for a drunkard. Fortunately, the patient succeeded in getting a lump of sugar into his mouth, and after a few seconds he was able to explain to the satisfaction of the officer that he was in an insulin reaction.

The differential diagnosis of insulin shock and diabetic coma may at times seem confusing. But if we visualize the contrasting features in these two conditions, the chances for error in diagnosis are easily eliminated. Insulin shock comes on suddenly, following an overdose of insulin, or omission of food after an insulin injection. The skin is moist, the breathing is normal, and the general appearance is that of weakness. In the onset the patient is usually excited and disoriented. Tremor is usually present. The urine is negative for sugar, although the first specimen (bladder urine) may yield a positive test. The response to carbohydrate therapy is almost instantaneous. In diabetic coma, on the other hand, the onset is gradual, a matter of days, usually follows an infection and omission of insulin. The skin is dry, the breathing is labored or Kussmaul type, the eyeballs are usually soft, the vision dim, and the urine is positive for sugar and acetone bodies. Nausea, vomiting, and abdominal pain are usually present. The response to treatment with insulin is gradual.

In conclusion, it may not be amiss to sound a word of warning that caution should be exercised when using insulin in the aged and those suffering from arteriosclerosis and heart disease. Its use is absolutely contraindicated in acute attacks of angina pectoris and coronary thrombosis. It has been shown that insulin has a tendency to increase, temporarily, the work of the heart.[12] These patients do better showing a little sugar in the urine.

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CERTIFIED MILK*

By Harris Moak, M.D.

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How often is milk the first and last food of life!

How often is the good physician there at the entrance and exit and in supreme command!

The good physician says that "A healthy mother's milk is best for her babe," and the rest of us join in a loud Amen.

The medical profession's interest in milk starts where nature leaves off—when we take up substitution. In artificial feeding of babies, what thousands of ideas have been tried, and are yet being tried! It is really amazing what things will keep a baby alive. Shipley relates the story of a family taken captive during the French and Indian War: "Mrs. Johnson had no milk for the baby. There was no food in the possession of the party except some dried meat from one of the horses which had been in the block house and which the Indians had killed and cured. The baby was fed on her journey to Quebec by the man who carried her after the following fashion. He would chew up in his mouth a morsel of the dried horse meat, and then spit it into the mouth of the baby. The child handled the food perfectly well, and not only lived to arrive in Quebec, but grew up into a woman, married, had a family of her own, and finally, a very pretty ending of the story, lived to nurse in his last illness the man who had fed her on her way to Canada."

*Read before the Providence Medical Association, March 6, 1933.

Yet with all the infant food ideas that have come and gone, clean, pure, nutritious cow's milk is still being used.

It is now past forty years since a plan was formulated whereby Certified Milk would be produced under the control of a Medical Milk Commission designated by a representative medical society. Forty years since the medical profession first took the science of bacteriology into the cow stable. Scarce anyone believed at that time that there would be need for such a medical endeavor for more than a short time. Yet here we are today with more and more complex problems than we ever dreamed possible.

What is Certified Milk? (The original definition of Dr. Coit, the founder of the Medical Milk Commission)

"Certified Milk is a product of dairies operated under the direction of a Medical Milk Commission, which body is appointed for voluntary service by a medical society. The milk is designed to fulfill standards of quality, purity and safety to insure its adaptability for clinical purposes and the feeding of infants.

"The certificate of the Commission constitutes its authorization for the use of the term 'Certified.' The certification is based upon the fulfillment of prescribed medical requirements for the milk and is the guarantee that it conforms to definite standards and to fixed methods and regulations for its production.

"The standards of quality consist of fresh, whole milk, unchanged by heat or cold, less than twenty-four hours old when sold, held between the temperatures of 48 and 50 degrees Fahrenheit, with not less than 12 per cent of total solids, with fat content between 3.5 and 5.5 per cent, and without the addition of any other substance, material, chemical or preservative.

"The standards of purity for the milk consist of the entire absence of particles of foreign matter, of the lowest possible bacterial and dust dropping content consistent with the highest possible practice of dairy hygiene, provided that the numerical bacterial contamination is at all times below an average weekly count of 10,000 per cubic centimeter.

"The standards of safety consist in the use of every known means to exclude from the milk pathogenic micro-organisms, a medical guarantee that every employee handling the milk is free from disease and is not a disease carrier, and a veterinary

guarantee that the cattle are in perfect health and cannot transmit through the milk any bovine affection.

"The methods and regulations for the production of Certified Milk are based upon the most advanced clinical requirements, prophylactic science and dairy husbandry and are changed as the action of the Commission modifies its technique for the attainment of its standards."

A technical definition is found in the Methods and Standards of the American Association of Medical Milk Commissions. This booklet of sixty-eight paragraphs is recognized and used throughout the United States. They are flexible and can be changed at any Annual Meeting. They are so changed in some respect nearly every year. As Kelly of the Bureau of Animal Industry at Washington has pointed out, Certified Milk is the only milk in the United States produced under uniform standards. All other grades of milk vary greatly in standards and are different in nearly every city.

The Standards for Certified Milk are analogous to U. S. P. Standards for Pharmaceuticals. What good physician today would want or dare use vital drugs of unknown production or quality? Yet how many physicians today will do this very thing with milk, that most vital of all foods? The physician cannot or does not often go to see the source of the milk supply he is using. Thus the Milk Commission is set up by your Medical Society to undertake the supervision of and vouchsafe for you a little high grade or Certified Milk which you can use with full confidence in your nutritional needs. The keystone of our requirements for Certified Milk is to keep bacteria of all kinds out of the milk. At first our success was largely measured and judged by low bacterial counts — the kind that grow on ordinary plates, the best index of cleanliness and cooling that we have. But how far we have departed from judging Certified Milk alone by this standard! Disease germs rarely show up on these plates, and we all know that a low count milk might be high in danger—and vice versa.

For the reason that tubercle bacilli do not grow on ordinary plates and that it takes days or weeks to prove their presence in milk, it was required from the first that all animals producing Certified Milk should be regularly tested and reactors eliminated.

Latterly the same requirement for Bang Abortion disease in cattle. Also the various means of detecting and eliminating cattle with other diseases. Disease-free animals are fundamental with Certified Milk. Though it is probably long years ahead, should not the ultimate goal in the dairy industry be clean, healthy animals? Who among us or among our patients really relishes a glass of milk from a diseased animal, even if it is pasteurized? What is true of animal risks is also true of human risks. Thus our careful control by complete physical and human specimen examinations of all new employees and weekly medical inspections thereafter.

"In June, 1932, the Board of Health of the City of Springfield, Massachusetts, held a hearing upon a proposed ordinance forbidding the sale of natural Certified Milk, except upon a physician's prescription. The four Certified Dairies and a number of raw producers were represented. An invitation to attend and speak at this meeting was accepted. The control of human risks by weekly medical inspections was explained and scores of reports from the Certified Producers were offered in evidence. Occasion was taken to point out that this protection could not be omitted even if the milk was pasteurized. Several cases were pointed out where milk believed to have been properly pasteurized was subsequently infected and caused epidemics. That the ultimate factor of safety of pasteurized milk is the proper and careful medical examination and inspection of all employees engaged in this work, the same as obtains in Certified production.

"The result was that Certified goes on as before, but all raw producers were asked and assented to similar medical control."

Richardson says:

"It may fairly be asked why, when City, County and State, and sometimes all three at once, are already engaged in the inspection of the dairying industry, the Medical Profession should step in and presume to erect another set of standards and series of inspections? Why isn't such action superfluous, not to say impertinent?

"The only adequate answer to such a question is the statement that, if a physician desires to avail himself of the highest potentialities inherent in the use of milk as a tonic, as well as the most valuable single dietary factory that we have, he must be able to order milk of a decidedly better grade than can be assured by any compulsory inspection that has yet been demanded anywhere, so far as is known. Certified Milk is nothing more nor less than milk

produced as any decent man or woman would wish to produce it for his family and his guests, if he were himself the owner of one or two cows, and conversely, that no other grade of milk, whatever letter of the alphabet be used to designate, it is so produced."

The questions of cleanliness, healthfulness and safety of Certified Milk are today well understood and very generally lived up to. One might say that the medical profession could lay aside its interest in the milk question. We have saved our babies. The infant mortality from bad milk is almost completely conquered. Let's rest on our laurels!

But progress will not have it so. Progress is always asking questions. Why do we use milk? Not because it is safe or clean or pure but because of the nutrition it contains. Does the nutrition in milk vary? And an increasing multitude say "yes." Well, we medical men are off again on an entirely new tack of the milk question. (Let one remind you that the word "tack" means not only a new course of action but in Provincial English it means, nourishment: applied to the food of cattle.)

The interest in the question of the nutrition from milk may well be judged by noting that the recently published volume of the White House Conferences on "The Production and Control of Milk" is quite over half devoted to the "Nutritional Aspects of Milk," and only ten of the 372 pages devoted to "The Control of Milk"—almost a misnamed volume. The work on Milk and Nutrition is so extensive and technical that I am only able to glean and give you a few generalities.

Our teeth and our tissues come only from the elements of nutrition, from our food. Take this question of the teeth alone. Where do they come from? How are they formed? Medical men are taught in their embryology that the dental buds for both the first and second sets of teeth are set about the 49th day after conception. The foundation element of the tooth is calcium or lime. The mother cannot make something out of nothing. She must either have this element in her food or else rob her own body, and this is often noted during pregnancy. The grinding surface of the teeth are all formed before the child is born. Teeth grow from the grinding surface down and the root growth lifts the tooth out.

Many studies have shown that the one best food for furnishing calcium is milk. An editorial in the American Medical Association Journal says, "The nutrition of a baby before it is born is quite as important as after it is born." The nutrition of a baby after it is born should be from its mother's breast; but the mother, again, cannot make something from nothing and we are finding in breast feeding experiments that nutritious milk is the very best galactagogue.

Hoobler has shown with human beings that the vegetable proteins are insufficient and inefficient in the production of milk protein. He has shown "that milk protein in particular affords the best source for the protection of the maternal tissue and the increase in the mammary secretion." Never has there been a time when the suggestions that present themselves in the light of the foregoing observations on milk production in woman been more deserving of consideration.

Here are two great fields for the use of not only clean and pure but nutritious milk, and it brings us up to the child that has to be artificially fed as well as the whole growth period of our children or past the age of puberty. It isn't enough merely to keep the baby alive today, but what of its proper nutrition and growth in all the years after infancy?

If we count on milk to help us in the growth and nutrition of our children, then let us most carefully inquire into the quality of the milk. Milk may be rich or poor, it may be clean or dirty, it may be safe or unsafe, it may be young or old. Twenty-five years ago our whole ambition was to make it safe—a low bacterial count, free from disease germs. This one factor was largely accomplished by pasteurization. We made milk safer but we did not know what else we did to it at the same time. We used to think of milk as containing so much lactose, protein, fat, ash, and water. What an amazing change in the concept of milk today as chemists and students of nutrition have looked further into it. How complex a molecule of milk seems today. During the recent years we have learned of the food accessory factors or vitamins A, B, C, and D (and perhaps the rest of the alphabet before we finish). We have taken the protein factor apart and find it made up of 17 or 18 various amino acids. We have learned how wonderfully the calcium and phosphorus and many other minerals are put in milk, and yet the more we learn about it the more remains to be solved. We know practically nothing of the ultimate process involved in the production of a

drop of milk, but all evidence so far seems to show that the cow no better than the human can make something out of nothing. She is simply a "transforming station." Her foods must have "the makings" of these necessary elements, and how well these facts are realized today by better dairymen. What sort of a calf would a breeder expect today from a cow fed on dry corn stalks or straw (a dead one probably), and what quality of milk would be produced by such a cow? Medical men should know more about the balanced ration fed today on better farms. The wide range of concentrates, the succulents such as green feeds, silages, and beet pulp, the preponderance of legumes in the hay mixtures, notably alfalfa; the feeding of molasses, the addition of calcium carbonate and ground bone meal. We feed a cow today on Certified Farms to not only help her produce a good healthy calf but also produce milk that is high in nutrition and growth power.

As a mother is fed doth she nourish her child, both before and after birth, and from the time the baby is weaned until it attains full growth it can best obtain many of these food factors in clean, fresh, nutritious, safe, raw milk.

This nutritional aspect of the milk question places a renewed responsibility upon the medical profession.

Chapin says, "Milk is a physiologic fluid, not merely a mixture of fats, proteins, carbohydrates, mineral matter and water, or a combination of protein matter and calories. As more is learned of its properties, the greater will be the demand for raw milk in the treatment of various nutritional defects. We must always remember that physical changes may interfere with some physiologic function. Many babies who do not thrive or cease to thrive on heated milk do well on a change to raw milk.

"The desirability of pasteurizing milk that is handled carelessly or in large bulk is not here called in question. It is a safeguard that should be generally applied to all milk not *properly handled at the source.*"

Chapin continued by saying that, "The constantly broadening knowledge of nutrition that is resulting from chemical studies and from animal feeding experiments should be a warning against passing of laws that will prevent progress, and no regulations should be tolerated that will put normal, physiologic milk beyond the reach of physicians and the public at large. Certified Milk, produced with scrupulous care, under the oversight of a reliable medical commission, and *then properly handled in the home,* is the ideal solution of the milk problem, at least as far as the delicate infant or invalid is concerned."

So much for generalities on the question of nutrition. Now for new and specific milk qualities. It is at our command today to feed more or less nutrition into milk. We can put more or less of several minerals in milk by feeding. We can put more or less of several vitamins in milk by feeding. We can considerably change the color of milk by feeding, and we have found that the curd tension of cow's milk varies greatly.

Almost suddenly we are publicly offered a milk with one vitamin greatly increased. We have often heard of "Sunshine in our Souls," but now we have "Sunshine in our Milk." For long years nobody has doubted the hidden virtues of the oil from the Sacred Cod—then science comes along and artificially puts this virtue in a tasteless oil-viosterol. Another step and we have it in milk—Vitamin D—at least 160 Steenbock rat units to the quart, equivalent to 10 drops of viosterol or three teaspoons of cod liver oil.

You men who feed babies tell us that Vitamin D is an absolute necessity for proper nutrition. If so, then how could it better be given than in the milk. Tasteless, constant in potency, no trouble in administration, inexpensive.

There is a rapidly increasing appreciation on the part of pediatrists for this milk throughout the country, and such appreciation has been expressed by no one better than Dr. Eustis of Boston, who spoke as follows at our last Annual Meeting in Washington last May:

"Speaking for a moment as a practicing pediatrician who has used Vitamin D Milk on my patients all this winter, the patients have liked it, the mother has liked it, it has worked. I have seen the work done in hospitals in Boston. It works. I have gone further; I have watched in the last few months some nursing mothers who were fed on Vitamin D Milk, yeast milk as Hess calls it, and their breast milk contains a very appreciable quantity of Vitamin D. I know the stuff is there."

What we have noted about an increased Vitamin D content is likely to soon be true of other vitamins and mineral matters.

Research along these lines has been largely confined to Certified Milk and thus the reason for the medical profession "to live and move and have its being" with the milk problem.

Truly it has been said and more truly can it now be said that "If out of the mouths of babes could come the truth of what goes into the mouths of babes more Certified Milk would be used."

SOCIETIES

RHODE ISLAND MEDICAL SOCIETY

REPORTS OF COMMITTEES

(Continued from the July issue)

REPORT OF THE MEETINGS OF THE NEW ENGLAND MEDICAL COUNCIL

The New England Medical Council was established in 1926. Each year our Association sends to the meetings of this Council three delegates, the President and Secretary of the Society being delegates ex-officio in addition.

Apparently there has been no report before the House of Delegates of these meetings since the Council was established. It is the custom of the Council to hold two meetings each year. The proceedings of these meetings are published in full in the *New England Medical Journal*. Members of our Society are probably less familiar with these proceedings than of those of other states, inasmuch as we have our own medical journal, and the *New England Medical Journal* is probably not so universally read.

Inasmuch as I automatically go off the committee at the coming annual meeting, I have been asked to give some report of the Council meetings, a thing which ought to be done at least once a year.

This report must necessarily be quite sketchy, and will cover the meetings of the last three years, most of which meetings I have attended.

The meeting on February 19, 1930, had for the subject of discussion, "The Relation of Clinics and Health Association to the Medical Profession." Papers were read by Dr. Roger I. Lee of Boston, Dr. D. L. Richardson of Providence, Dr. George Blumer of Yale, and Dr. George H. Bigelow of Boston. At this meeting there were an unusual number of papers. More commonly there is one paper which presents the subject for discussion in a general way, and a more or less general discussion follows.

September 25, 1930, "The Practice of Medicine in Industry" was the subject. This paper was read by Dr. Harold W. Stevens of the Harvard School of Public Health, and was discussed by Dr. Cecil Drinker, Professor of Physiology at Harvard, Dr. R. S. Quinby of the Hood Rubber Company, and Dr. W. Irving Clark, Surgeon to the Norton Company, Worcester.

On February 12, 1931, Herbert E. Locke, Esq., of Augusta, Me., attorney for the Maine Medical Association, read a paper upon "The Malpractice Suit; Why and Wherefore." The subject was very ably presented from the point of view of the legal profession rather than that of the medical profession, and was followed by a very interesting discussion.

The next meeting was on December 1, 1931, at which time Dr. Stephen Rushmore of Boston presented a paper on "The Medical Practice Act." At this meeting the health officers from all the states of New England were present and there was a very general and quite a satisfactory discussion of the subject.

March 10, 1932, the discussion of Mr. Locke's paper on "Malpractice Suits" was carried over from the meeting of a year previously. In the evening of that day, Dr. Iago Galdston of New York, and Dr. Morris Fishbein of the Journal of the American Medical Association, spoke upon the subject of "Medical Publicity by Organizations and Individual Physicians."

At the October meeting in 1932, the question of Post-Graduate Education, with special reference to the Treatment of Fractures, was discussed particularly by Dr. Charles L. Scudder. His plan was approved by the Council, but no special method of financing this plan was suggested or adopted.

At this meeting there was a vote of protest sent Dr. Edward H. Cary against government aid to the soldiers of the World War for surgical or medical services for disabilities of non-service origin.

In February of this year the topic was "Medical Economics, with particular reference to the Cost of Medical Care." The papers and discussions were good, but did not lead to anything more definite than such has in the past.

Respectfully submitted,

FRANK T. FULTON, M.D.

Public Relations Committee

(No report made)

Defense Committee

(No report made)

Board of Trustees of the Medical Library Building

The Medical Library building and grounds are in good condition. The well-kept appearance of the hedge and lawn is evidence of the efficient service rendered by the janitor, Mr. G. H. Peterson. During the past year a leak in the roof was promptly repaired and a drain pipe was replaced which it is hoped will prevent similar leaks in the future. Some damage is being done to the linoleum by tilting back the heavy chairs in the reading room. Members should be cautioned against this practice.

Respectfully submitted,

Albert H. Miller, *Chairman*

Annual Report of Committee on Maternal Mortality

The Committee on Maternal Mortality has continued during the past year its investigation of every death reported as due to puerperal conditions which has occurred in the state. There were sixty-four cases so certified this year as compared with fifty-eight last year. After thorough investigation of each case, the Committee considered that five of the sixty-four cases reported as due to puerperal conditions were not due to any puerperal condition. Last year, of the fifty-eight cases certified as puerperal, the Committee considered only forty-four to be such in fact. For the two years, therefore, one hundred and twenty-two were certified and were classified under the rules of the Census Bureau as puerperal, and the Committee considered, after careful personal investigation of each case, that only one hundred and two were actually due to puerperal conditions.

As has been the case for many years, the condition which accounts for the largest number of puerperal deaths is puerperal infection. The next most frequent cause was albuminuria and eclampsia. It is interesting to note that of the twenty-three cases reported as due to albuminuria and eclampsia seven were found on investigation to give a history which justified a diagnosis of chronic nephritis as a primary cause and pregnancy a secondary cause. One death was reported as following Cæsarian Section, but our investigation showed that another patient had a Cæsarian Section, so that there were two deaths following Cæsarian Section, the same as last year. There were thirteen deaths reported as due to hemorrhage, of which the committee felt there was one which was due to causes other than hemorrhage. Hemorrhage continues to be one of the preventable accidents to take a large toll of puerperal deaths.

Your Committee is working in conjunction with a similar committee of the New England Gynecological and Obstetrical Society in an effort to have the reports of the various health departments of the New England states uniform in makeup so that a large body of statistics may be accumulated for intelligent comparison. Until this objective is reached, comparisons will be futile. The health departments have shown themselves most co-operative, and we feel that we shall accomplish something worth while in the not-too-distant future.

Dr. Round and his staff have made every effort to further the success of our work and we gratefully acknowledge his helpfulness.

No detailed report or analysis of our statistics at the present time would be of value, as the number of cases is still too small. The Committee would like to be continued so that it may carry on the investigation for at least three more years.

Respectfully submitted,

Edward S. Brackett, M.D.,
Chairman

(Report accepted and committee continued.)

Further Committee Reports continued in a future issue.

NEWS ITEMS

Dr. Isaac Gerber of Providence was elected president of the New England Roentgen Ray Society at its annual meeting held in Boston May 20, 1933.

The other officers elected were vice-president, Dr. Frank E. Wheatley of Boston, and secretary-treasurer, Dr. Thomas R. Healy, also of Boston.

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ORIGINAL ARTICLES

MODERN IDEAS IN REGARD TO EPILEPSY*

By William Newton Hughes, A.M., M.D.
112 Waterman Street, Providence, R. I.

Lennox and Cobb, in their monograph on "Epilepsy, Medicine Monographs, Volume XIV," Williams & Wilkins Company, 1928, summarized very clearly most of the work on epilepsy which seemed scientifically sound at that time. I have followed their outline to a large extent in preparing this paper.

"Modern Problems in Neurology," S. A. Kinnier Wilson, William Wood and Co., 1929, gave an excellent summary of the author's study on epilepsies and narcolepsies and contributed much to our present ideas.

Talbot's "Treatment of Epilepsy," The Macmillan Co., 1930, summarized much of the important work on epilepsy up to that time.

In the May 1930 "Archives of Neurology and Psychiatry," Vol. 23, No. 5, Temple Fay summarized much of the work on dehydration in epilepsy and reported its therapeutic effect on fourteen epileptic patients over a two and one-half year period.

In the October 1931 "Archives of Neurology and Psychiatry," Vol. 26, No. 4, Weiss and Lennox showed that convulsions may occur even with the cerebral vessels dilated under the influence of histamine.

In the May 1932 "Archives of Neurology and Psychiatry," Vol. 27, No. 5, a special article on "Causes of Epilepsy" by Cobb reviewed briefly many of the known facts in regard to epilepsy.

In the December 1932 "Archives of Neurology and Psychiatry," Vol. 28, No. 6, articles on the cerebral circulation by Cobb and Finesinger and by Chorobski and Penfield established new physiological and anatomical facts which proved assumptions previously made in regard to epilepsy.

In the three books and four articles just mentioned can be found bibliographies which will cover all the references in my paper. I have the highest regard for the work done by Lennox and Cobb on epilepsy and for their evaluation of the work of others. I can recall no instance in which their ideas and mine on epilepsy are not in entire agreement.

In writing this paper, I planned to emphasize the use of dehydration in convulsive and allied conditions because I had found that the majority of physicians had no very clear ideas in regard to its value. As some knowledge of modern ideas in regard to convulsive and allied conditions is necessary for a proper understanding of the use of dehydration, an exposition of these ideas takes up much of the paper.

Epilepsy is considered by most physicians today as a convulsive state or seizure which tends to recur, a symptom rather than a disease. It is, to quote Lennox and Cobb, "a syndrome characterized by the sudden appearance of paroxysms, of which convulsive movements or loss of consciousness or both, are a principal element." This definition will include the seizures which occur in Jacksonian epilepsy, pycnolepsy, uncinate epilepsy, so-called idiopathic epilepsy, symptomatic epilepsy, and hystero-epilepsy, and both types of seizures, the grand mal and the petit mal. As allied to these convulsive states, and perhaps partially explained by similar ideas, I shall mention only migraine and narcolepsy, though there are many other conditions, of course, which might be described.

Migraine, as you know, is a severe, recurrent or periodic hemicrania with or without ophthalmic and abdominal symptoms. It has been called a sensory seizure. Narcolepsy is a state of recurrent paroxysmal diurnal sleep or apparent sleep regardless of how dangerous the situation in which it occurs may be. It is often associated with catalepsy, a state of sustained immobility with or without clouding of the sensorium, and with cataplexy, a condition with sudden transient physical powerlessness under the influence of the emotions.

The convulsive capacity, or whatever you wish to call it, for these states is apparently inherent. It is so great that convulsions may occur even with the cerebral blood vessels dilated with histamine, as shown by Weiss and Lennox (1931). As proof

*Read before the Rhode Island Medical Society, Providence, R. I., March 2, 1933.

of this inheritable trait, Lennox and Cobb (1931), in their study of 1,086 non-traumatic and non-institutionalized epileptic persons with 9,139 near relatives, found eight times as many epileptic relatives per thousand as in a normal control group of 250 persons with 1,896 near relatives. The near relatives consisted only of parents, siblings, and offspring. They also state that more epilepsy is found among the children of migrainous parents than among the children of epileptic parents. This indicates a certain group of "silent carriers" of the tendency, whom it would be difficult to sterilize or to prevent from marrying in the hope of cutting down the inheritance of the convulsive capacity. The convulsive capacity may be brought into play by a number of different precipitating factors, such as functional physical and chemical changes within the brain tissue, mostly associated with acid-base and water balance, psychogenic factors, gross and microscopic abnormalities in brain structures, and abnormalities in body structure other than the brain, e. g., in the gastro-intestinal tract, respiratory tract, endocrine glands, metabolism, sympathetic system, and intracranial circulation.

How the neurological mechanism of a convulsive state occurs is not exactly known. Numerous theories have been advanced, but no exact localization of the focus from which fits arise can be made. Some believe that the cortex is the responsible factor; others that the brain stem without the cortex is the responsible factor; while still others feel that the convulsion may start in the cortex or in the brain stem or even in the spinal cord, and it is unquestionably true that convulsions can be set off by disturbances in various parts of the central nervous system. The four chief theories which have been advanced to explain the mechanism of convulsive states are the irritative, the release, the short circuit, and the explosive.

The irritative theory is the one which is most commonly known. Irritation or stimulation of the cortex by various factors, such as scar tissue, hemorrhage, meningeal inflammation, etc., is supposed to result in convulsions. Jacksonian epilepsy seems to be partially explainable by this theory.

The release theory, perhaps better known as the theory of cortical inhibition, assumes that when inhibiting impulses from the entire cortex are suddenly and temporarily removed, the brain stem and spinal cord will function explosively in the typical epileptic seizure. The decerebrate rigidity of animals suggests this theory. The occurrence of a Babinski reaction during a petit mal attack in which the cortex could not be considered to have become exhausted is evidence of interference with cortical function and may suggest some inhibition there.

The short circuit theory is best supported by the work of Fulton, and Dr. Southard was one of its foremost advocates. According to it, associative or internunciatory neurones are supposed to delay action between afferent and efferent neurones, and there is an inhibitory block to motor action at the various motor levels in the nervous system, e. g., the spinal, cerebellar, basal, and cortical. When these associative neurones are fewer in number than normal, due to agenesis, destruction by birth trauma or head injury or some other factor, there is less delay in afferent-efferent response. A shorter path is taken, and then disorderly, convulsive, explosive phenomena result. The short circuit theory is really a release theory, but only small areas of the nervous system are inhibited, while according to the main release theory the entire cortex is inhibited.

The explosive theory is perhaps the one which most appeals to modern research workers, and it is the one with which further research is apt to be most productive. Some sudden change in nerve cells is conceived to occur which makes them react explosively over widespread areas. This change within the nerve cells is comparable to that which occurs in anaphylaxis, hyper insulinemia and states of anoxemia and alkalosis.

Probably the neurological mechanism of a seizure is not explained by any one of these theories, but various combinations of them may be needed to explain the mechanism of any seizure. At the present time the explosive theory seems to be more satisfying and stimulating than any of the others.

Of course, the important thing is not the neurological mechanism or course of events in a seizure, but why the seizure occurs. I have given brief suggestions in covering the neurological mechanism as to how a seizure occurs. I shall describe the modern theory of Lennox and Cobb as to why the seizure occurs, because I believe that their theory is the best and represents the most careful work. It is somewhat as follows: In certain people who have an inherent, possibly inherited, convulsive capacity, various factors, psychogenic, gastro-intestinal, respiratory, endocrine, metabolic, intracranial, etc.,

cause sympathetic stimulation which results in contraction of cerebral arteries and consequent cerebral anemia with decreased blood flow in the capillaries. This sympathetic stimulation and anemia may be focal and may occur in different parts of the brain. It leads to deficient oxygenation and consequently alkalosis, which results in increased permeability of the capillaries with a pouring of fluid and inorganic base from the blood into the tissues, a tissue edema, which in turn results in some increased intracranial pressure and so more anemia, etc.,—a vicious circle. In addition, the alkalosis causes a less efficient use of what little oxygen there is and so an increased tissue-anoxemia, which results in more alkalosis and tissue edema. In this way another vicious circle is started. Somehow or other this anoxemia, alkalosis, edema, change in electrolyte equilibrium, increased intracranial pressure, one or all start up an explosive action in nerve cells which results in an epileptic seizure. Then, due to apnoea and muscular contractions, lactic acid and CO_2 collect in the tissues and give a condition of acidosis which initiates a reversible reaction leading to better utilization of oxygen, less edema, a lowered intracranial pressure, a restoration of circulation with a release of arterial spasm and somehow or other a release of general muscular spasm.

I shall try to give some idea of the evidence, experimental and otherwise, upon which the different parts of this theory are based. The inherent convulsive capacity or unknown constitutional element is assumed because only a small minority of people who present the various precipitating factors of seizures actually have seizures. Proof that this convulsive capacity may be inherited in certain cases has already been given.

Anatomy and physiology show that the sympathetic autonomic system is richly distributed to the gastro-intestinal tract, respiratory tract, endocrine glands, and blood vessels, and that it has much to do with their proper function. Clinical experience indicates that at certain times the cranial-sacral autonomic seems to predominate in function and that at other times the cervical-thoracic sympathetic seems to predominate in function. Various physiological or anatomical changes in the gastro-intestinal tract, respiratory tract, endocrine glands, and blood vessels such as constipation, intestinal ptosis, body posture, fatigue, deficient pituitary secretion, increased adrenalin secretion, etc., might result in sympathetic stimulation or cranial sacral autonomic fatigue with diminished function and so an increased sympathetic function through lack of inhibition.

The association of emotions with the sympathetic nervous system is too well known to need further comment.

Stohr (1922) gave convincing illustrations of nerves and nerve endings on the fine pial blood vessels. Penfield (1932) described nerve fibers on intracerebral blood vessels. Forbes and Wolff (1928) showed through a window in the skull contraction of the pial arterioles on stimulation of the cervical sympathetics and dilatation of these vessels on vagus stimulation. Stimulation of the cervical sympathetics on one side of the neck resulted in contraction of the pial arterioles on the same side of the brain, while stimulation of the vagus on one side resulted in dilatation of pial vessels on both sides of the brain. Cobb and Finesinger (1932) showed that vasodilator fibers pass up the vagus trunk to the medulla oblongata, then to both facial nuclei through an intramedullary route yet unknown and out along the facial nerves as far as the geniculate ganglion. These fibers were traced by Chorobski and Penfield (1932) without interruption at the geniculate ganglion into the greater superficial petrosal nerve to connect with the plexus of nerve fibers on the internal carotid artery. The vasodilator fibers then seem to spread along the large cerebral arteries and their branches just as do the sympathetic nerves which join the carotid artery at a lower level.

Spielmeyer (1924-1927) found in Ammon's horn and the cerebellum in 80% of 126 necropsies on epileptics small focal destructive lesions which presented the picture of an ischemic destruction—cell degeneration, lipoid products of degeneration and gliosis similar to that found in arteriosclerosis. He believes that these changes are caused by a functional circulation change—a vasoconstriction.

Red blood cells with oxygen bound to their hemoglobin are much less numerous in the areas of local anemia which results from contracted blood vessels. Deficient oxygenation then results, as there is much less oxygen available for tissue uses than is usually the case. Acute anoxemia is accompanied by alkalosis due to the increased lung ventilation and elimination of CO_2 which occurs during the anoxemia. As a result of the "blowing off" of CO_2 with its tendency to increase blood alkalinity, base

substances leave the blood and enter the tissues in order to keep the hydrogen ion concentration of the blood fairly constant. Acute alkalosis results in edema and, presumably, increased permeability of tissues is a corollary of this edema. Edema in the brain tissue, which is enclosed by the meninges and the skull, produces increased intracranial pressure.

Jacobi (1926) and Forbes and Wolff (1928) showed contraction of pial arteries with overventilation and alkalosis. It is evident that alkalosis increases anoxemia through contraction of arterioles with a diminution in red blood cells with their oxygen bound to hemoglobin.

In alkalosis, also, the blood gives up oxygen less readily because the alkalosis has raised the oxygen dissociation curve. This decreases still further the utilization of oxygen by the tissues.

The following physiological changes in the brain, as enumerated by Lennox and Cobb, have been shown to prevent seizures and their opposites to precipitate them:

(1) A rich oxygen supply.

(2) Acidosis produced by fasting, by a ketogenic diet, by acids or acid-forming salts, and by inhalation of CO_2.

(3) A low chloride and a high calcium content.

(4) Dehydration of tissues.

(5) Decreased permeability of tissues.

(6) Decreased intracranial pressure.

(7) An unimpaired intracranial circulation.

I shall briefly discuss some of the evidence connecting the above physiological changes in the brain with seizures. Lennox (1928) demonstrated that in certain patients who had frequent petit mal seizures, attacks could be precipitated by decreasing the oxygen content of the respired air by rebreathing air from which the CO_2 was absorbed and that attacks could be prevented by increasing the oxygen content of the respired air.

Lennox and Cobb (1928) fasted 27 adolescent and adult patients of the non-institutional type and obtained definite improvement in about one-half of the cases during the fast. They believe that the most probable explanation of the improvement during the fast is the accompanying acidosis or closely related physico-chemical changes in the nerve cells.

Helmholz (1927) at the Mayo Clinic reports that of 91 children, adequately treated by a ketogenic diet, 31% have been free of attacks and an additional 23% have been definitely improved.

Lennox (1927), following the ingestion of NH_4Cl, $CaCl_2$ and NH_4NO_3, obtained marked temporary reduction in the frequency of seizures, though in a few instances seizures returned in seven to ten days in spite of the continued administration of these salts. Lennox and Cobb (1928) showed that seizures cease on rebreathing air from which the CO_2 has not been removed.

The return of seizures in spite of the continuation of acid salts suggests that, even though acidosis still persists, its beneficial effect is over-balanced by an increased concentration of chlorides in the tissues. The feeding of NH_4NO_3 tends to produce an acidosis due to increased blood chlorides.

Convulsions in tetany are increased by any salt which will precipitate calcium in the tissues and body fluids.

That excessive intake of fluid predisposes animals to convulsive seizures is well shown by the "water intoxication" experiments of Rowntree (1926) in which dogs given excessive fluid by stomach tube developed typical convulsions and often died in status in four or five hours.

Weed (1921) noted convulsive seizures in animals by giving excessive fluid and also he found that the seizures had a more rapid onset if hypotonic solutions were given by vein.

Elsberg and Pike (1926) pointed out in animals that when hypotonic solutions had been given intravenously or when intracranial pressure had been increased, convulsive seizures could be produced by approximately one-half the dose of absinthe usually required to produce seizures in normal animals and that if the animals were dehydrated by the use of hypertonic solutions, twice the usual convulsant dose of the drug was required to cause an attack.

Drabkin and Ravdin (1927) found that in dehydrated animals convulsions did not occur after the same dose of insulin which caused convulsions in the normal controls.

Temple Fay (1930) reported 14 patients with convulsive seizures treated by dehydration for two and one-half years, and eight treated for less than one year. He found that proper control of fluid intake, combined with dehydration, greatly diminished the tendency to convulsive seizures in certain cases representing various types of epilepsy.

The cessation of seizures which may occur after lumbar puncture is well known, and its effect is probably due to relief of intracranial pressure and brain edema—a pressure and a dehydrating effect.

In susceptible individuals, seizures are often produced by the subcutaneous administration of pituitary extract which results in water retention and brain tissue edema. Occasionally seizures which are chiefly hysterical in origin are diagnosed by this means, as they do not seem to occur with this increase in water retention as easily as do other types of seizures.

The following diseased conditions in which convulsions often occur are associated with brain edema: eclampsia, alcoholism, cerebral trauma, birth injuries, apoplexy, acute meningism, etc.

That retention of fluid in the tissues is a factor in producing seizures is also shown by the following facts:

(1) Alkalosis which gives water retention tends to produce seizures.

(2) The drinking of large quantities of water, if associated with water retention in the body, tends to produce seizures.

(3) Acute or chronic infections which retain water in the body, perhaps to a certain extent through general vasoconstriction, tend to produce seizures.

(4) Increased concentration of chlorides in the tissues with resulting water retention tends to produce seizures.

(5) Acidosis, which gives water loss from the body, tends to prevent seizures.

(6) Restriction of fluid intake tends to prevent seizures.

(7) A low salt diet, which tends to prevent water retention in the body, tends to prevent seizures.

(8) Bromide medication, which tends to push chlorides from the body and in this way to give water loss, tends to prevent seizures.

There are comparatively few statistics which show the value of restriction of fluids alone. Temple Fay reports a small number of epileptic patients, as I have previously noted, in which he shows diminution in the number and frequency of seizures by drastic water restriction. Talbot believes that water restriction works best in adult epilepsy. The ketogenic diet which results in acidosis and loss of water from the tissues shows in children about 31% cessation of seizures and an additional 23% improvement.

Dehydration therapy is being used by many of the best neurological clinics in the country as an aid in the treatment of convulsive states, and I hope that I have been able to set forth enough facts to make fluid restriction and other dehydration therapy seem at least theoretically rational in the treatment of convulsive states. Many physicians at the present time are forcing fluids in these conditions. I have had one patient whose family doctor advised him to drink a great deal of sodium bicarbonate water to improve a transient skin condition, even though the patient told him that he had been advised to restrict his fluids because of epilepsy. The patient had the only seizure which he had had in over a year within a few hours after he had taken the first two glasses of this sodium bicarbonate water. Both the water and the sodium bicarbonate were not advisable, as has been shown in this paper. Personally, I am convinced that dehydration procedures are of great aid in controlling convulsive and allied conditions, and actually the real reason for this paper was to set forth some of the theoretical reasons for restricting fluids in convulsive states.

Syz (1927), using acid fuchsin as a convulsant in frogs, showed that injury to any part of the central nervous system caused an increase in the permeability of the whole brain and cord to this dye with a resulting increase in susceptibility to convulsions.

The experiments of Elsberg and Pike with intravenous hypotonic and hypertonic solutions as mentioned previously show that increased intracranial pressure is a factor in producing convulsions and that decreased intracranial pressure is a factor in preventing them. Clinically many conditions with increased intracranial pressure are associated with convulsive seizures in many cases, e. g., eclampsia, uremia, alcoholism, head trauma with brain injury, acute meningism, etc.

Spielmeyer's necropsy reports previously mentioned give anatomical or histopathological evidence of an impaired intracranial circulation in epileptics.

Stewart, Guthrie, Burns, and Pike (1926) found that if the intracranial circulation were interrupted for a period of minutes, the animal used later devel-

oped muscle twitchings and convulsions. Substances which cause constriction of cerebral arteries seem to tend to cause convulsions in those who are susceptible. Among chemicals commonly used experimentally for this effect, caffeine, ergot, nicotine, and camphor may be cited. Luminal which dilates cerebral vessels tends to prevent seizures. The convulsions which may occur in paroxysmal tachycardia are regarded as due to impaired intracranial circulation, or anemia. (Barnes, Mayo Clinic, 1926.)

Encephalograms and ventriculograms in convulsive states at times show evidence of interference with cerebro-spinal fluid circulation. Encephalograms in addition show an increase of fluid in the subarachnoid pathways and often cyst formation. According to Temple Fay, the spinal fluid is absorbed chiefly through the Pacchionian granules. In epilepsy he has shown that these granules are often diseased, and it is assumed that the circulation of fluid in the cerebro-spinal pathways is diminished in many cases.

According to the ideas mentioned in this paper, I shall attempt to rationalize for you a part of the treatment of patients with convulsive states and with the allied conditions, migraine and narcolepsy. First, of course, various diagnostic procedures are utilized to find out which physiological changes in the brain seem most important in the individual cases that are being studied. An attempt is made to explain to the patients the therapy advised and to connect it with the physiological factors which seem to influence their seizures. To maintain relative dehydration I suggest that they take not over one teaspoon of any liquid at one time and that they shake no salt on their food. I also ask them to restrict carbohydrate foods which give water retention in the body, to restrict to a lesser extent protein foods, and to force fat foods which tend to give water loss through a tendency to produce acidosis. In certain cases NH_4Cl or $CaCl_2$ are given temporarily to aid in pushing fluids from the body through their tendency to produce inorganic acidosis, and they are stopped in four or five days so that the chloride concentration in the tissues will not become too high. The ketogenic diet seems to work best in children and it is used at times to produce acidosis and dehydration. Occasionally magnesium sulphate is given because it tends to reduce intracranial edema and intracranial pressure and to produce acidosis. Also, it takes care of any constipation that might occur and result in sympathetic stimulation with cerebral vasoconstriction. At times calcium is given in the hope of increasing the calcium content of the tissues and so controlling the seizures. In many cases bromides in addition are given to force chlorides and with them water from the body. In many other cases luminal is given for dilatation of constricted cerebral vessels. Alkalis, e. g., sodium bicarbonate, which tend to produce alkalosis are forbidden. Alcohol which tends to give water retention is forbidden. To aid in getting a good oxygen supply to the brain I advise daily exercises of such a character as to improve the abdominal muscles chiefly and to promote more lung ventilation. Adequate rest and relaxation, especially after meals, is urged in the hope that it will tend to combat angiospasm of cerebral vessels. And last, but by no means least, the general physical and mental hygiene is given very careful attention in the hope of combating infections and emotional conditions which might give cerebral angiospasm.

By maintaining some such regime as described for a long period of time, it may be possible to produce some permanent change in nerve tissue which will tend to prevent a recurrence of convulsions. The fact that convulsions do not occur immediately if the ketogenic diet is stopped tends to give some support for this belief.

Summary

Evidence has been presented to show that the occurrence of epileptic seizures is markedly influenced by the following physiological conditions—an inherent convulsive capacity which is undoubtedly inherited to a certain extent in many cases; hydration in brain tissue; increased permeability of capillaries in brain tissue; change in electrolyte equilibrium in brain tissue; increased concentration of chlorides in brain tissue; decreased concentration of calcium in brain tissue; vasoconstriction of cerebral vessels; gross or focal cerebral anemia; impaired intracranial circulation of blood or spinal fluid; increased intracranial pressure; balance between cervical-thoracic and cranial-sacral autonomic systems; direct cortical "irritation"; brain tissue defects of an embryological or acquired nature; alkalosis; and anoxemia.

Physiological methods of treatment for epilepsy are being used extensively, and I believe that they are of much value.

CONGENITAL DISLOCATION OF THE HIP*

By JOHN RIDLON, M.D.
NEWPORT, R. I.

When the head of the femur is found dislocated from its socket, and there having been no known injury that could have caused it, it is called a congenital dislocation. Spontaneous dislocation would be a better name, because the dislocation is not always present at birth. It may take place later on. But the defect in the joint that makes the dislocation possible is really a congenital defect.

The real congenital defect is in the acetabulum. It is shallow — saucer-shaped, instead of cup-shaped. Sockets have been found pear-shaped at open operations, with the narrowed part uppermost. This may be due to the pressure from the femoral head as it gradually passed upwards. It is believed that there are congenital dislocations while the child is in the uterus, because such seem to have been demonstrated; and it is believed that some dislocations happen at birth, but this has not been proven. Rarely are congenital dislocations discovered until after the child has walked; but I have seen two cases where the mother noticed a short leg and brought the child for examination, and I found the hips dislocated. But in both of these cases when the children were returned for operation between two and a half and three years of age, the hips were no longer dislocated. Around the border of this shallow socket is the cotyloid ring, and this is always more or less narrowed, perhaps from the pull of the capsule. The capsule is elongated, and if the displacement is considerable it may be narrowed—hour-glassed—in its middle part; and its lower portion may be drawn across the lower portion of the socket forming a kind of pocket, which has been likened to a hymen. The dislocated head is not normally rounded, perhaps because it has not been in a normal socket. It may be shaped somewhat like the end of a lemon, and in older children it may be of a mushroom shape. The ligamentum teres is elongated, and sometimes is also enlarged. All these changes obstruct a manipulative replacement of the head. Rarely is the operator conscious of the feeling of contact of the cartilage of the head with the cartilage of the socket. The best replacement by manipulation is usually to have the head so placed, and held, that it looks through the narrowed capsule and constricted cotyloid ring into the shallow socket more or less filled up with the round ligament. But to replace these hips by an open operation also has its handicaps. For if the capsule and hymen are slit, they cannot be effectively sutured, and that leaves a weakened support. The round ligament cannot be otherwise disposed of except by removal, and that removes necessary blood-supply from the head which already lacks normal X-Ray density. The socket cannot be deepened without leaving a stiff joint—provided the hip stays in the socket. A congenital defect is a congenital defect, and can never be made quite like a normal condition.

Now these shallow sockets vary in degree. Some can never by any means that we now know of be made to retain the replaced femoral head and give a useful range of motion. Then they range all the way up to the defective socket that grasps only half of the femoral head but retains it unless subjected to a traumatism.

In 1915 I reported the case of a man, a policeman, 54 years old, who had never had any subjective hip symptoms—who thought his hips perfectly normal, whose one femoral head was in contact with the acetabulum for only three-fifths of its articular surface and in the other hip for only half its articular surface. I have seen a hip spontaneously dislocate in a child of three years, and I have seen a hip slip out in a boy of 14 years from simply bending backwards in a gymnasium. It is my opinion that all hips that dislocate from traumatism are more or less defective—have more or less shallow sockets; and that a normal hip, when subjected to a sufficient traumatism, will suffer a fracture of the femoral neck before a dislocation will occur, or a breaking off of a part of the rim of the socket will take place.

There are no subjective symptoms from a congenitally dislocated hip until late in life, and sometimes not then. I have a friend, a doctor, now past seventy years, with two dislocated hips. He can still play 18 holes of golf without fatigue, and says that it is not necessary to operate on congenitally dislocated hips—that they are not a handicap. The objective symptoms are a limp from one short leg, or a waddle from two short legs, lordosis of the lumbar spine, prominent buttocks, flexed thighs, and adduction of the thighs. When both hips are dislocated, the perineum is broadened from side to side. In a child that has not walked, the upward displacement of the femoral head may be only from one-fourth to one-half inch, while in a child of fourteen years it may amount to more than

*Read before the Rhode Island Medical Society, December 1, 1932.

three inches of real upward displacement, and the practical shortening from the flexion and adduction may amount to five inches. But there are other things that give just this picture, namely, a congenital absence of the femoral heads and necks; and coxa vara.

The certain diagnosis should be made by the fingers of the examiner. A dislocated femoral head can be felt by the fingers of the examiner. If he cannot feel it, he is not competent to replace it. If the head is dislocated backwards and upwards, it can be felt under the buttock muscles, and inward rotation of the thigh makes it more easily felt, but it cannot be felt in front. If the head is dislocated upwards it can be felt at the back when the thigh is rotated inwards, and at the front when it is rotated outwards. But if it is dislocated forwards and upwards it can be felt somewhere near the anterior iliac spine, and more distinctly when the thigh is rotated outwards, but it cannot be felt at the back when the thigh is rotated inwards. An X-Ray film may be a comfort in confirming the diagnosis, but like many laboratory findings must not have precedence over the clinical evidences. When the picture presented by the patient—I mean the posture when the patient stands—is typical of a congenital dislocation, unilateral or bilateral, and the examiner cannot find the femoral head with his fingers, and begins to doubt the accuracy of his sense of touch, an X-Ray film showing a coxa vara or a congenital absence of the femoral head and neck restores one's morale.

If these dislocations are discovered at or soon after birth the upward displacement of the femoral head may be only half an inch, or even less, but they are definitely out of the socket—not subluxations, if by subluxations one means a partial displacement. After a child has walked for a year the upward displacement may be an inch or more. By ten years the displacement may be two inches or more; and by fifteen years there may be a practical shortening of five inches. Most femoral heads are displaced more or less directly upwards—supracotyloid dislocations. Some years ago I thought that most were backwards and upwards. Now I believe that these displaced backwards and upwards rank next to the supracotyloid; and a few are displaced forwards and upwards. I was the first surgeon to report a case of forward and upward dislocation. Knowing just where the femoral head is greatly helps the surgeon to make a prognosis of the result from a manipulative replacement. In wisely selected cases one may expect perfect results from replacing posterior dislocations. The percentage of perfect results from supracotyloid dislocations is less; and from anterior dislocations it is still less. I expect to get at least 70 percent of perfect hips as a result of my manipulative replacement. Denucè, in Bordeaux, France, had about 80 percent perfect results. This I believe was due to the fact that he did not begin to operate on these cases until about 1914, and because he was able to give better after-treatment than I have ever been able to give. Denucè's patients were treated in the hospital for many months—often for more than a year. My patients were kept in the hospital for only about three days. As soon as a child could be picked up from his bed without crying he was taken home, and only rarely did I see the patient again until the end of eight months; and in one instance the child was taken from the hospital two hours after the operation and carried home a distance of 200 miles. My unilateral cases walked by the end of two weeks, and often went to school. Denucè's patients did not walk at all until he believed the hip secure in the socket.

In selecting cases for operation, I prefer to have the child from 2½ to 3 years old, with a shortening of an inch to an inch and a quarter. But the age is of much less importance than the extent of the upward displacement. My oldest patient was a girl of 13 years with only an inch of shortening because of a mushroomed head and a short femoral neck. It relapsed. My next oldest was 11 years with an inch and three-quarters of shortening. The result was perfect, and the head still in after twenty years, although the socket showed shallow in the X-Ray film and the head was not quite normal in contour. In the early days I operated on one child of 16 months and one of 19 months. Both relapsed because the muscles were not shortened enough to hold the head in the socket. I want an inch of shortening, and not more than 2¼ inches. I have replaced cases with more, one with 3¼ inches, and the hip was left with very little movement. One bilateral case with 2¼ and 2½ inches at the end of eight years walked perfectly, but had difficulty in going up and down stairs. This case was a large girl of ten years, while a small child of six years, with 2⅛ and 2¼ inches upward displacement, had a perfect result. I have operated at the Children's Hospital and the Massachusetts General Hospital in Boston, in Providence, in New York City and Rochester, N. Y., in Philadelphia and Pittsburgh, Pa., in Cleveland and Cincinnati, O., in Detroit, Benton Harbor and Kalamazoo, Mich., in Fort

Wayne, Kokomo, Rushville and Evansville, Ind., in Chicago, Rockford and Rock Island, Ill., in Sheboygan, Fond du Lac and Madison, Wis., in Chattanooga, Tenn., in Dubuque, Des Moines and Sioux City, Iowa, in Lincoln, Nebr., in Sioux Falls, So. Dakota, in St. Paul and Minneapolis, Minn., in Denver, Col., in San Francisco, Calif., and in Albuquerque, N. M. Some years ago the American Orthopedic Association appointed a committee to investigate final results, and recommend a method of treatment. Of the cases reported on, 46.5% were my cases. The committee recommended only two methods: that of Ridlon and that of Denucè.

My treatment is as follows: The patient is fully anaesthetized. Ether is my choice. I operated once with the patient under Nitrous Oxide gas at the Lakeside Hospital in Cleveland, and have replaced a few hips when Etheline gas was used. The patient's hips are raised about four inches on a sand-bag; an assistant holds down the pelvis and thigh on the other side; for a left hip the crotch of the operator's left hand is put in the crotch of the patient, with the thumb in front of the socket and the first, second and third finger-tips on the femoral head, neck and greater trochanter of the dislocated hip which can be felt when the thigh is flexed; the bent knee is in the palm of the operator's right hand; the thigh is flexed until the head reaches the lower border of the socket (In a few older children with upward displacement of more than two inches it may be necessary to rotate the thigh inwards to bring the head low enough); then the thigh is abducted; presently the femoral head can no longer be felt by the tip of the index finger; and then presently it can be felt by the thumb in front; and then it goes into the socket—more or less into the socket. In only a few cases does the operator get the sensation of the cartilage of the head in contact with the cartilage of the socket. It is in most instances just looking into the socket through the narrowed capsule and cotyloid ring. In very many instances the bent knee can now be released, and the position does not change. But sometimes the thigh when released will adduct, and the head slips out. Then it should be again replaced, bored into the socket, and possibly the knee be further pressed backwards, even beyond the transverse plane of the body, until it no longer springs up and the hip goes out. The thigh is then in 90 deg. flexion, 90 deg. abduction, and rotated out 45 deg. In this position the greater trochanter lies below the head, and the head is in a position from which it may slip to the front of the socket. The back of the thigh looks downward, and its outer side backwards. If it is rotated inwards towards the normal position where the back of the thigh looks backwards, and its outer side outwards it is apparently in some cases more perfectly in the socket. But to retain it in that position—that is to say, without any rotation—the plaster splint must be carried below the flexed knee, in which position the child cannot walk on the foot of that leg. In all but a few cases I choose to risk the head slipping forward for the sake of having the child walk early, and much, to force the head deeper and deeper into the socket. When a dislocated hip has been replaced, the bent knee cannot be straightened because of the short ham-string muscles. But short ham-string muscles must not be accepted as a proof that the head is in the socket; it may be anywhere in the neighborhood of the socket, or even in the obdurator foramen. The operator must be able to feel the head in the socket. Then with the thigh flexed and abducted 90 deg. and rotated out 45 deg., the plaster cast is put on. The child is covered with stockenette that fits without a wrinkle; a muslin bandage is drawn through between the skin and the stockenette in front of both hips, for use as a scratcher; sheet-wadding bandages are wrapped around the thigh and body up to the ribs to the thickness of about half an inch; additional wadding is placed over all prominent bony points; and this is bandaged down firmly and smoothly with an ordinary roller bandage, to give a smooth surface to the inner side of the plaster splint. The plaster splint ought to be a very thick one—so thick that it will not bend or break even if wetted by urine occasionally. At the top it is trimmed down to just below the border of the ribs; above the unoperated thigh it is trimmed off enough to allow flexion of that thigh to the sitting posture; at the knee, off at the back, the outer and front sides to allow right-angled flexion of the knee, but on the inner side of the thigh it should be left to extend down below the inner condyle. The splint is then covered with stockenette. The child is put in bed with the buttocks and the thigh of the replaced hip raised, so that the child lies in the cast, and the weight of the cast not on the child. The child leaves the hospital as soon as it can be picked up without crying. The unilateral case should walk at the end of two weeks; the bilateral case should stand and begin to walk at the end of two months. From the beginning gentle straightening of the knee should be done, and the child encouraged to kick the knee straight. This forces the femoral head more deeply into the socket. Nothing else is done

until the end of eight months, when the cast is removed. Then the parents are requested to daily flex the thigh, carrying the bent knee towards the shoulder of the opposite side, and rotate the thigh inwards. It may require many months to bring the leg down into adduction beside the other leg. The longer this takes, the surer is the hip of staying in. The parents are told that if at anytime the leg comes down suddenly next the other leg, and no longer seems to be longer, the hip has probably slipped out, and the child should be brought for examination. If a hip slips out, nothing ought to be done until the upward displacement has again become an inch or more. Then it should again be replaced. Many years ago I replaced a hip in a little girl from Benton Harbor, Mich. It relapsed. At the end of a year at the urgent solicitation of the parents I replaced it again. Again it slipped out. Then I waited five years, and replaced it, and that time it stayed in.

The Denucè manipulation is substantially the same as mine, except that he carries the flexed knee to the opposite shoulder before abducting it in all cases. This I feel is not necessary. He does not mention that he places his hand in the child's crotch with thumb in front of the socket and fingers on the head, neck and greater trochanter of the femur in order to know just where the head is while it is being replaced. At the end of from two to four weeks the cast is bivalved, the front half lifted off, and the child carefully placed in a tank of brine, salt enough to float him. Here as he floats he is encouraged to move the thigh. Then he receives massage, and is exposed to sunlight. The child is not permitted to stand or attempt to walk until the surgeon from his clinical examination and from the X-ray film is confident that the hip is secure.

Putti, of Bologna, Italy, has operated upon a large number of cases. He prefers to operate on them as young as possible, even before they are "house-broke." Instead of a plaster cast he puts a wedge-shaped mattress between the child's abducted thighs; and the mattress is covered with water-proof material.

Osteotomy of the femoral shaft to correct real or imaginary bending of the femoral neck by rotating the fragments one on the other was done by Sherman of San Francisco and Hibbs of New York, and is now being done by Gaenslen, of Milwaukee, and others. Hibbs made the osteotomy before a bloodless replacement on his special table, and Sherman did his about two months after replacement by the open operation. These operations seem to me to be unnecessary and absurd. All are done with the intent to turn the femoral head backwards into the socket—the assumption being that all the necks are twisted forwards. Why these necks are twisted — if any are twisted — has not been explained. One might assume that when a femoral head is displaced forwards the neck might tend to bend in that direction during the period of growth. But if this is what happens it must be assumed that when the head is displaced backwards the neck tends to bend in that way; and when displaced upwards, tend to bend upwards; but these bendings are ignored by the osteotomists. Further, none of them have reported any considerable number of final results to compare with the results from non-osteotomized cases.

And the same may be said of the open replacements—the Hoffa operations and their modifications. Galloway, of Winnipeg, Canada, is now the only orthopedic surgeon I know who does the open operation in all cases. He has not only not reported his results, but when a former assistant of mine visited him to observe some of his results none were shown—all were too far away! The relapsed hip from manual replacement that Hoffa did for me in 1904, and which was in when the plaster splint was removed, relapsed by the end of six months. My single case relapsed. Bradford, of Boston, who had a large experience, manually replaced one hip of a bilateral case. It relapsed. He then replaced it by the open method, and again it relapsed. The other hip he replaced with the machine of Lawyer Bartlett and it remained in. I am willing to admit that an open operation designed to replace and anchylose the hip joint is worthy of consideration—if one prefers and anchylosed hip to a relapsed dislocation with good movement. Just now the so-called shelf operation is being done by several orthopedists. This was first done by Alexander Hugh Ferguson in Chicago in the early years of this century. It was a child of proper age for manual replacement, and with only about an inch of shortening. Ferguson did not attempt to replace the dislocated head, but just turned a flap of the outer table of the ilium down over the head. Six years later I examined the child and found the head just where he had put it, and the false joint had a good range of motion. But why do such an operation on a case that could have been readily replaced manually, and with a 70%, or better, prospect of a perfect joint?

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EDITORIALS

STOP THE LEAK!

The recent economic depression has wrought many social adjustments, some for good and some for evil. The more fortunate well-to-do people have of necessity developed a keener appreciation of "How the other half live" and have risen nobly to the occasion with unparalleled altruism and generosity creating and financing great hospitals and clinics. All of this is commendable and deserves the admiration of all, and especially the medical profession who perhaps have always been closest to the suffering and poverty-stricken of their respective communities.

But along with such provision to help the afflicted there has grown a great deal of abuse of so-called charity by persons who could well afford to pay at least a modicum for the benefits which they obtain, and which were in their original planning intended only for those in dire want.

Many of these beneficiaries were and are ignorant of the fact that they are literally stealing aid from those for whom it was intended. Others, as may readily be proved by those cognizant of the

facts, are deliberately misrepresenting their financial status and demanding free or nearly free care, under false pretenses.

And the Doctors are left "Holding the Bag."

As to the remedy for a situation that is assuming the proportions of a national disgrace,—there can be no relief until definite criteria of deservedness based on investigated facts, are established.

Social workers are neither qualified by inclination, training, or business acuity to determine who and who is not entitled to the benefits of free clinics. This has been repeatedly demonstrated and is the reason for the great proportions to which these abuses have progressed. There is need for a definite, trained financial agent or agency for each clinic large or small, under constant oversight of a staff committee in order to even approach a solution of the problem.

A simpler and more effective method is to receive no free or partly free patients except through certification from the Director of Public Aid. Such a rule in operation at a large hospital in one of our own cities has already demonstrated its necessity by the glaring reduction in the applications for admission to free clinics.

If we take a less than belligerent attitude and take it now, through organized effort, we shall see ourselves retired from private practice and engaged in a form of "State Medicine" but without remuneration in a very short while.

Already free clinics are taking hundreds of patients out of our offices who could and should reward the physician for his painstaking, effective and kindly care. It is time we got together and made constructive rules to stop the nefarious "Hold Up" of our profession.

Rhode Island Hospital Clinical-Pathologic Conference

Case No. 1, Presented by Dr. John B. Ferguson

M. S. Admitted March 3, 1932; age 68; occupation, housewife; married; white; female.

C. C.: Pain in upper right quadrant.

P. I.: Patient has been having pain for past year in upper right quadrant. Original onset was not very severe. About 3 months before admission pain returned and since that time has been getting progressively more severe.

P. H.: Mastoid operation, operation for tumor of cervix, no other hospitalizations, accidents or operations.

Progress Notes

3/7/32. Appendectomy and Cholecystectomy on the 4th. Good post-operative recovery.

3/18/32. Wound drained and a rubber tissue drain was inserted for 24 hours.

3/25/32. Still has indurated area to rt. of wound. Drainage increased some.

4/3/32. Wound draining less. Runs a persistently high temperature. Complains of pain in right ear. The drum is infected and slightly bulging. Phenal glycerine drops ordered.

4/6/32. Drum was opened two days ago, draining small amount of pus. Condition does not appear very good.

4/9/32. Temperature is lower today. Breathing, however, is difficult. Shows signs of beginning consolidation at the left base, probably a hypostatic thing.

4/11/32. Condition took a decided turn for the worse during the night. Both lungs filling rapidly. Prognosis very bad.

4/12/32. Condition became progressively worse and she expired at 1:30 A. M. Permission for postmortem examination granted.

X-Ray, April 9, 1932: Examination of the mastoids shows both mastoids to be of average size and made up of pneumatic cells. The right mastoid shows no definite evidence of pathology. The left mastoid is dull and is consistent with mastoiditis.

3/4/32. Operation: Appendectomy and Cholecystectomy — Usual upper right rectus incision. Gall bladder found greatly enlarged, distended. No stones felt. Liver adherent to ant. wall with old adhesions. Not disturbed. Stomach and duodenum normal. Pancreas greatly enlarged, hard, not particularly irregular. Gall bladder removed from below upwards, isolating with ligating duct first. Bladder closed over with running silk catgut stitch. One cigarette drain to gall bladder fossa. Short, stubby appendix dissected from wall of cecum, plastered down by old adhesions. Wound closed in usual layers.

Laboratory Data

Urine: S. Yellow, acid, Sp. Gr. 1022, sugar negative. Least possible trace albumen. Slight amount of sediment.

Urine: Amber, Acid, Sp. Gr. 1020, sugar negative, albumen negative.

Dr. Ferguson: The history on this case is rather meagre. I first saw this woman in January, 1932. At that time she came in with a history of having

had gas and indigestion for the past ten years, etc. (Reads mimeographed copy.)

There was nothing in the extremities except marked thickening of the joints from hypertrophic arthritis. She had had an operation of the cervix. She had never been jaundiced. We sent her over for some X-Ray pictures of the gall bladder on January 27. The report reads: "Examination of the gall bladder after oral administration of dye shows the gall bladder somewhat larger than usually seen. The gall bladder is well outlined with the dye. It did not empty after the usual meal. Films were again repeated in six hours and the gall bladder shadow shows good concentration of the dyes. Findings are consistent with a poorly functioning gall bladder. There is no evidence of opaque calculi."

On the 4th of March we operated. The usual right upper rectus incision. Gall bladder found greatly enlarged, distended. No stones felt. Liver adherent to the anterior wall with old adhesions. Not disturbed. Stomach and duodenum normal. Pancreas greatly enlarged, hard, not particularly irregular. (We thought it might be a chronic pancreatitis.) Gall bladder removed from below upwards, isolating with ligating duct first. Bladder closed over with running silk catgut stitch. One cigarette drain to gall bladder fossa. Short, stubby appendix dissected from wall of cecum, plastered down by old adhesions. Wound closed in usual layers. She went along with a normal temperature until the 16th of March. On that day she got a little temperature and I looked at the wound. The dilated sinus had evacuated pus. From that time on she drained a good deal of pus and on the 27th of March she had taken cold and said she had a pain in her right ear.

On the 3rd of April the ear showed that the right drum was infected and slightly ruptured and the ear man came over and opened the drum and got quite a little pus and ordered some A. B. irrigation. In a day or two she complained of pain in the left ear. That showed some trouble there and it opened itself the next day. The temperature came down gradually but never satisfactorily and on the 9th of April she showed signs of consolidation at the left base. At the same time the picture of the mastoids showed both to be of average size and made up of pneumatic cells. The right mastoid shows no definite evidence of pathology. The left mastoid is dull and consistent with mastoiditis.

On the 11th of April she became very ill and both lungs filled up rapidly. The chest became very solid and she became progressively worse and died at 1:30 A. M.

Permission for post-mortem was granted.

Dr. Clarke: The only X-Ray pictures we could find were the ones of the mastoid. I presume the others were taken on the outside.

Dr. Ferguson: They were taken here.

Discussion

Dr. Cooke: This case came to me and I had been puzzled over it for twenty-four hours. From the history and the X-Ray examination it is clear that she had trouble with her gall bladder. On the other hand, one feels that possibly the gall bladder was not the cause of the trouble. In the first place she had a tumor of the cervix removed. I don't know whether that was benign or malignant. At the operation the woman presented an enlarged pancreas and an enlarged gall bladder, yet there was no jaundice. If she had cancer at the head of the pancreas, the jaundice would be painless. At operation a large gall bladder was found and removed. There were no stones. The liver showed a good many adhesions about it. The possibility there is of an old inflammatory process. To my mind, there is a possibility of some malignant condition there and to my mind it is possible to have a tumor of the pancreas which does not involve the head of the pancreas. This woman went along about ten days and then developed a temperature, following which she had an infection of both middle ears. X-Ray shows involvement of the mastoid on the left. I cannot say if that was in connection with pneumonia or whether it was a new growth. Certainly, going back to the history of ten or twelve years, it is very suggestive of gall stones, and yet this woman did not have gall stones. I have no doubt that this gall bladder was pathological under the microscope. A good many gall bladders have been removed (chronic cholecystitis) where the symptoms have not been relieved and where gall stones were not found. What more I know about the case is what Dr. Ferguson said, and knowing nothing about the post-mortem I should think the primary lesion is in the pancreas. I am sorry I cannot be positive but that is what I would imagine.

Dr. DeWolf: What was the previous history of the woman's condition for the past ten or five

years? You go back one year and that is all. Did she lose weight?

Dr. Ferguson: That history is not correct. She had been ailing for ten or twelve years with typical gall bladder symptoms, but she had not lost much weight.

Demonstration of Post-Mortem Material

Dr. Clarke: I have no gross specimens on this case, so I will have to tell you about the post-mortem findings rather than show the actual specimens. The first thing noted at the post-mortem was in doing the external examination. Dr. Newel did this post-mortem and he describes a "partially healed upper right quadrant surgical incision with a small fistula opening in the lower part of the wound. This fistula is probed and found to extend up and down beneath the peritoneum, but does not lead to the gall bladder bed but is traced down around the caecum, where it is lost in numerous adhesions." After he got into the peritoneal cavity, there were numerous adhesions between the diaphragm and the liver and also numerous ones around the gall bladder area and in the region of the caecum. The stump of the appendix was inverted and just beyond it there is found a small "perforation from the caecum out into a cavity formed by adhesions which leads to the sinus tract previously described. In this cavity is found a small piece of suture material."

The next thing is the lungs. The right weighed 1000 grams and the entire upper right lobe was solid. The lower lobe of the right lung was also solid and there was a mixture of red and gray — so there was a lobar pneumonia involving both the upper and lower lobes of the right lung.

The spleen was a typical pneumonia spleen.

The pancreas consists of a gray, granular, hard mass measuring 6 x 8 cm. On section no pancreatic tissue is recognized. The liver weighed 1400 grams. It was studded with gray, granular nodules, the largest of which measures 1.8 cm. in diameter. There was nothing in the genitalia. The cervix was distorted, possibly the result of some previous operation, but there is no tumor in the cervix or uterus at post-mortem.

So there were three distinct lesions:

Carcinoma of the pancreas, involving not only the head of the pancreas but it had replaced the pancreas.

There were metastatic lesions from this in the liver and, in addition, there was this perforation of the gut, retroperitoneally and draining at the operative wound, and in addition there was a terminal lobar pneumonia.

(*Slides shown*)

Q.: Was there any metastasis in the lungs?

A.: The only metastasis found were in the liver.

Dr. Chase: That thing around the appendix—where did you say it was?

Dr. Clarke: It is in the caecum about 1 cm. from the stump of the appendix.

CASE REPORTS

Case Reported by Dr. McCaffrey

December 8, 1931.

It seemed to us that the diagnosis in this case pointed to something in the cortex or something in the meninges. In considering the meninges, we thought first of the possibility of a subarachnoid hemorrhage, but this was ruled out by the absence of blood in the spinal fluid. Other forms of cerebral hemorrhage were ruled out by the general spasticity of the extremities. Abscess of the brain was considered. There seemed to be no primary focus to which we could attribute an abscess. Syphilis was considered, but this seemed to be ruled out by the negative serology. Tuberculosis with meningitis was a possibility which, I think, in this case should be considered. However, the long duration of the sickness is probably against tuberculous meningitis. Most cases live only four weeks. Then again against tuberculous meningitis is the finding of 121 mgs. of sugar in the spinal fluid. That is too high for tuberculous meningitis. No history of cough. No cough while patient was in the hospital. We also considered Paget's disease of the bone, because the patient had a rather large head and these areas of calcification which were seen in the X-Ray plate did in some way suggest the possibility of Paget's disease of the bone. Before we had a chance to look further the patient expired, but we did have post-mortem X-Ray examination of the pelvis which showed nothing in the pelvis to suggest Paget's disease of the bone. It seemed to us that the X-Ray of the lungs probably solved the difficulty. This increased density in the right upper lung was in an area where we found dullness with bronchial breathing. It seemed to us that the patient probably had a new growth primary in the lung with metastasis to the brain. There was nothing in the physical examination to indicate the location of the cerebral tumor unless we considered the speech

defect, in which we might look for a growth in the left hemisphere. There was not anything to help us except the occipital headaches."

Demonstration of X-Ray Films

Dr. Batchelder: The first films which were taken are those of the skull. There is a rather faint shadow right here. The report should have read: "Lateral views of the skull showed two areas of calcification two inches above the sella turcica." Those show in both the right and left lateral views. It is brought out a little more clearly here. The shadows are of much the same appearance, except one is larger than the other. There is a fairly well defined border to the smaller one. Rather indistinct on the larger. A more or less similar relation holds on the other side. It is not the typical appearance of calcification in the choroid, but in view of there being two we thought that that was probably the explanation. There are no signs indicating increased introcranial pressure. Film of the chest shows the result of considerable motion during the exposure, but it does show this large mass in the upper right lung filling over about the same density of the upper mediastinal shadow. There is also a good representation of the heart shadow which does not appear enlarged. Of course, many fine changes in the lung fields would be obliterated by the motion. In the report both the possibility of a new growth and aneurysm were suggested. From the location it could very well be an aneurysm, but a point I think I mentioned before in these meetings that I find usually holds true is that there is usually an enlargement of the heart shadow with an aneurysm. I understand that it is not one hundred percent true but it is true in a large percentage of cases. Another possibility which might be mentioned would be collection of glands from a Hodgkin's disease. In that condition, however, the shadow usually has a lobulated border, quite definitely so, as the mass is made up of a collection of enlarged glands. So from the X-Ray we come to the conclusion that it was most likely a malignancy arising in the bronchus or in the trachea.

The films taken at post-mortem of the pelvis are perfectly normal. A spot film of the lateral skull shows these shadows more clearly than the other. Again these shadows cannot be positively identified. There is a suggestion of a very faint shadow that appears to the left of the mid-line.

Dr. Hughes: As to the possibility of localization, probably the enlargement of the left pupil points to involvement on that side. We have a difference in the jugular pressure. Whether it is definitely on the left side or not, the headache being more toward the occiput would tend to suggest that the process might be more on the left side. The chest X-Ray picture as interpreted seems to indicate malignancy. The cell count and colloidal gold and the calcification in the brain could be due to a tumor of some sort. Metastatic tumors in the head often give the first clinical signs of tumors in the chest or tumors in the prostate. A doctor sometimes may not know there is any tumor in the prostate or chest until he finds something in the head.

Demonstration of Post-Mortem Material

Dr. Clarke: Here is the apex of the left lung. At this point is a large bronchus which is plugged by gray, granular, pliable tumor tissue. When we cut across it here is this large tumor mass infiltrating the lung tissue. The histology of that tissue is typical of epidermoid carcinoma originating from the bronchi.

Back here in the right occipital lobe growing out of the cerebrum is this large tumor mass, largely necrotic. The histology is the same as that of the lung tumor, so it is primary carcinoma of the bronchus with metastasis to the brain. I have both of the chorioid plexuses here. There is not much to see grossly, but when you cut it with the knife there is a little calcification in each chorioid plexus.

Dr. McCaffrey: This case was presented to bring out the fact that chronic disease primary elsewhere in the body frequently manifests itself by neurological signs. I have in mind two other cases that first presented themselves by neurological signs. One was a case of Paget's disease of the bones which first showed the signs of meningitis. This patient was taken sick with a fever. Spinal fluid examination revealed increased pressure with massive coagulation of the fluid. X-Ray of the head and the pelvis showed the typical changes of Paget's disease. In this particular case there had been nothing of which this patient complained until he was taken sick and developed the signs of meningitis. In this particular case we felt that the meningeal symptoms were probably due to an irritation of the spinal cord due to the heavy weight of the head. The head increased in size. The other case which first presented neurological signs was a case which we had recently of tuberculous meningitis. This boy had had pneumonia last winter and had not made a satisfactory convalescence. He did

not regain his normal weight and complained of nothing except general weakness and loss of appetite. He was suddenly taken sick with fever. He lost interest in his recovery. Examination of his lungs, which were not at all suggestive of a cough or chest condition, revealed a tuberculous process, and spinal fluid was consistent with tuberculous meningitis. This case was presented to bring out the point that chronic cases frequently first manifest themselves neurologically.

SOCIETIES

Rhode Island Medical Society

REPORTS OF COMMITTEES

(Continued from the August issue)

Committee on Necrology

During the past year, the Rhode Island Medical Society has lost through death seven active members, one honorary member and one non-resident member.

Dr. Frederick T. Rogers died on August 23, 1932 in his seventy-fourth year. Dr. Rogers was born in New York State in 1859. He graduated from the University of New York Medical School in 1882. He later did post-graduate study in the Manhattan Eye and Ear Infirmary. He was surgeon to the Eye Department of the Rhode Island Hospital for many years and consultant to St. Joseph's Hospital, and Charles V. Chapin Hospital, Pawtucket Memorial Hospital and the Woonsocket Hospital. He was President of the Providence Medical Association from 1901-1902 and Treasurer of the Rhode Island Medical Society from 1897-1902. He was President of the State Society in 1911-1912. He was Vice-Chairman of the Ophthalmological section of the American Medical Association in 1911, and President of the New England Ophthalmological Society in 1912. He was a member of many other medical societies.

Dr. Richard F. Duncan died on December 9, 1932, in his sixty-eighth year. Dr. Duncan was born in Massachusetts in 1865, and graduated from the Albany Medical College in 1889. About twenty years ago he did post-graduate work in Ophthalmology at the Harvard Medical School. He was a member of the staff of the Eye Department at the Rhode Island Hospital, St. Joseph's Hospital and Sayles Memorial Hospital.

Dr. Cornelius J. Mahoney died on January 3, 1933, at the age of fifty-eight. Dr. Mahoney was born in East Providence in 1875. He graduated from the Harvard Medical School in 1898. He was a member of the staff of St. Joseph's Hospital for many years.

Dr. George R. Barden died on January 29, 1933, at the age of sixty-five. Dr. Barden was born in Scituate, R. I., in 1867 and graduated from the Bellevue Medical College in 1896. In 1902 he went to the Columbus Hospital in New York City, where he was an interne for three years. During this period he completed a course at the New York Post-Graduate Hospital. In 1916 he was made a Fellow of the American College of Surgeons. He served as surgeon and consulting surgeon to the St. Joseph Hospital and the Rhode Island Institutions.

Dr. Gilbert Houston, 2nd, died on February 21, 1933, at the age of thirty-nine. Dr. Houston was born in Rhode Island in 1894. He graduated from the University of Vermont, College of Medicine, in 1918. He had practiced in Pawtuxet Valley since 1919. Dr. Houston served in the Medical Out-Patient Department of the Rhode Island Hospital and Pawtucket Memorial Hospital. He was, at one time, President of the Kent County Medical Society.

Dr. Henry A. Cooke died on March 17, 1933, at the age of sixty-seven. Dr. Cooke was born in Groton, Mass., in 1866. He graduated from Harvard Medical School in 1896 and was an interne at the Massachusetts General Hospital for two years thereafter. He began private practice in Providence in 1899, and his long career as a prominent practitioner was interrupted in 1906 by two years devoted to regaining his health at Saranac. He returned to Providence and continued in active work until three years ago. Dr. Cooke was visiting physician for the Rhode Island Hospital for many years.

Dr. Raynor Woodhead died on April 11, 1933, at the age of fifty-seven. Dr. Woodhead was born in 1867 and graduated from Tufts Medical School in 1898. He practiced medicine in Valley Falls, R. I., for over thirty years.

Dr. William W. Keen, a world renowned surgeon and an honorary member of the Rhode Island Medical Society, died in Philadelphia, on June 7, 1932.

Dr. Winthrop A. Risk, a non-resident member, died in Washington, D. C., on May 2, 1933, at the age of sixty-four. Dr. Risk was born in Massachusetts in 1869 and graduated from the Harvard Medical School in 1893. He became superintendent of the Rhode Island State Home and School on June 1, 1905, and filled that position for twelve years and two months. For the past ten years he had been resident physician at the Tuberculosis Hospital at Washington, D. C. He served on the staff of the Gynecological Department of the Rhode Island Hospital. During the World War he served as a Captain in the Medical Corps of the United States Army, and from 1919-1929 he was a Major in the Medical Reserve Corps. He was Treasurer of the Rhode Island Medical Society for ten years and held the same office in the Providence Medical Association for nineteen years. He was business manager of the Rhode Island Medical Journal for four years.

Herman A. Lawson, *Chairman.*

(2)

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"[1] *J Soc. Chem. Ind.*, 1923, 42, 185, 205."

*J. C. Drummond and T. P. Hilditch: The Relative Values of Cod Liver Oils from Various Sources, His Majesty's Stationery Office, London, 1930.

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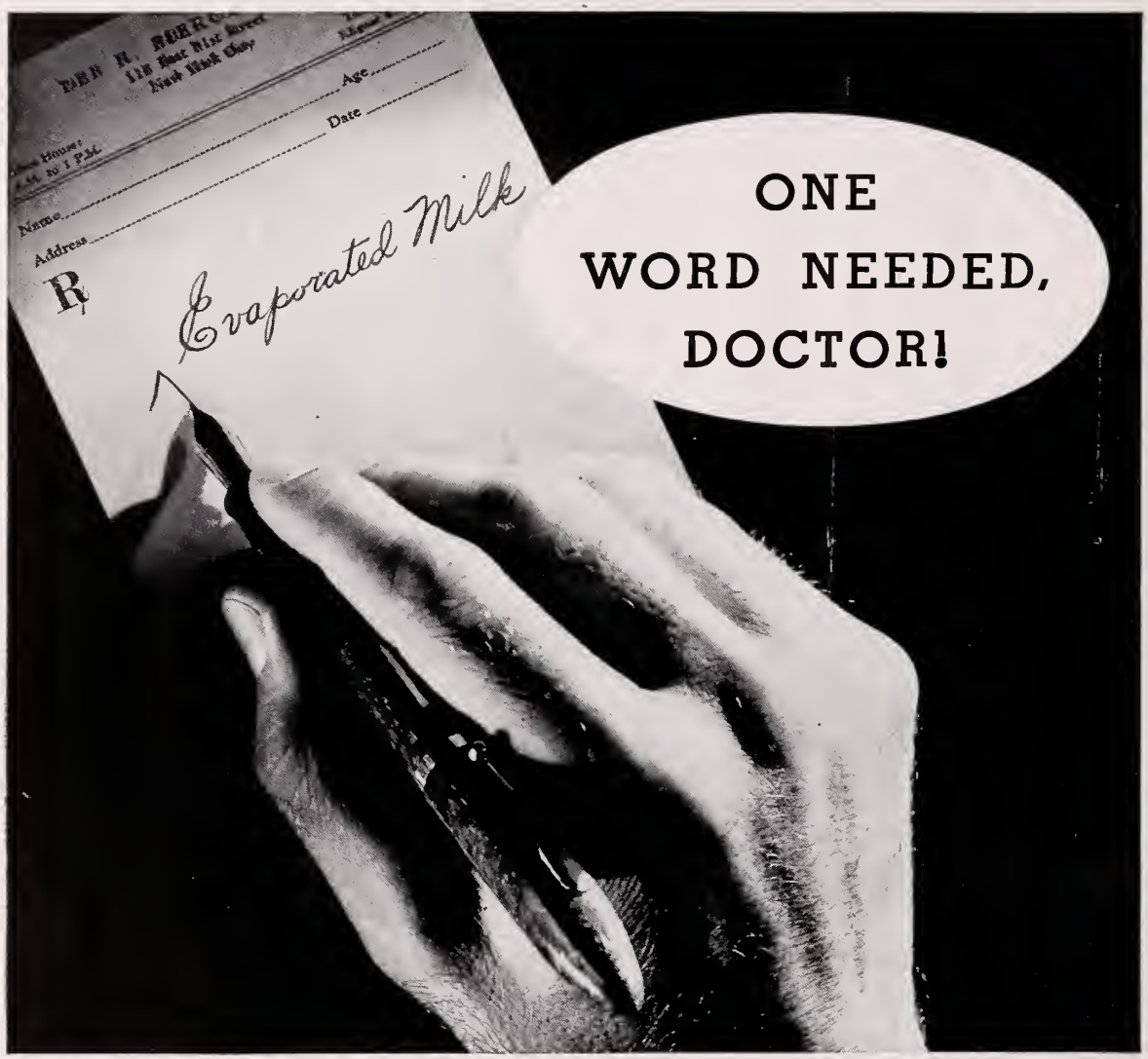

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ORIGINAL ARTICLES

CONGENITAL INTESTINAL OBSTRUCTION WITH REPORT OF CASE*

By REUBEN C. BATES, M.D.
122 WATERMAN STREET, PROVIDENCE, R. I.

Congenital intestinal obstruction is a deformity of the intestinal tract due to a mal-development in utero. It is characterized anatomically by a marked stenosis or complete atresia of the bowel lumen, and clinically by persistent vomiting, constipation, anuria and rapid progressive emaciation usually terminating fatally.

The bowel above the obstruction is usually greatly dilated and the wall hypertrophied, especially when the obstruction is complete. The bowel below the obstruction is, as a rule, not merely empty and collapsed, as in acquired chronic obstruction, but is firmly contracted and cord-like. Never having functioned, it is often the caliber of the adult appendix, and is frequently designated as worm-like. It has, nevertheless, a perfect lumen and can be distended with moderate water pressure to normal or almost normal size.

The terms atresia, stenosis, occlusion and microcolon have sometimes been used interchangeably in the literature to denote complete or partial diminution of the lumen of the large bowel.

Occlusion of the intestines is relatively uncommon. The most common sites are near the ampulla of vater, the duodeno-jejunal junction, and the ileocecal valve. Davis and Poynter in 1922 collected 392 cases in which the obstruction was situated between the pylorus and the anus. In one-fourth of these cases the atresia was found in the ileum and cecum and only 39 cases showed the atresia located in the colon. In most instances, the lumen is occluded by a thin membrane.

Atresias and stenosis in the region of the colon are far more rare than those of the small intestine. According to Kreuter's statistics, in 50% of the cases there are also obstructions of the lumen of the small intestine.

Heckel and Apfelbach reported a series of twenty-nine cases of atresia of the colon and these occurred in the following order: in seven, atresia occurred in the sigmoid flexure and rectum; in five, in the ascending portion of the colon; in three, in the transverse portion, and in two each, in the ileocecal valve, splenic flexure and descending portion. In eight instances, many of these portions of the colon were continuously occluded.

The origin of congenital stenosis and atresias in the region of the digestive tract has not yet been fully explained. The following factors are suggested as partly explanatory: (1) Mechanical factors; (2) inflammatory processes; (3) embryonal disturbances of development.

The first attempt at operation was made by Bland Sutton. The operations consisted of an enterostomy. Since then a number of operations have been performed, nearly all of the operators contenting themselves with bringing up the end of the proximal segment and making an enterostomy.

The outlook for the baby is extremely grave, owing mainly to the fact that diagnosis is rarely made early, and also that the intestine in infants is normally small and anastomosis is at best difficult.

Rechter, writing in Abt's Pediatrics, was able to find two cases in the literature where anastomosis was done with success, and adds a third case of his own, which gives some indication of high mortality.

Report of Case

B. DeF., a full-term female infant weighing 6 pounds was born at the Providence Lying-In Hospital on March 3, 1933, at 4 A. M. Eighteen hours after birth the abdomen was considerably distended although the baby nursed and seemed quite well. On the second day the distention was quite marked and the baby vomited practically all feedings. The baby was said to have passed meconium the first day of birth. Rectal examination showed a complete obstruction about 1½ inches from the anus.

*Presented at the staff meeting of the Lying-in Hospital, June, 1933.

Intestines of an infant age 4 days, showing complete atresia of large intestine. 1—indicates the dilated small intestine; 2—the ileo-cecal junction; 3—the contracted large intestine.

Dr. Bugbee performed an ileostomy two days after birth. At this time the baby had no temperature, nursed quite well and did not look sick. The infant died four days after birth.

The necropsy showed the stomach and intestines in their normal positions. The stomach and small intestines were greatly distended and ended blindly at the ileocecal junction. The ileocecal valve was absent and a fine probe could not be passed at this point between the ileum and the coecum. The large intestine measured ¼ inch in diameter, was worm-like in appearance and contained a lumen. Microscopically all the muscle fibres appeared normal in the section of the colon.

Microscopic section of the colon showing normal muscle layers.

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The author is indebted to Dr. B. E. Clark, of the Rhode Island Hospital, for the photographs of the specimen.

RULES GOVERNING THE CHILD HEALTH STATIONS, SUBMITTED BY THE PROVIDENCE CHILD WELFARE COMMITTEE

William P. Buffum, M.D., *Chairman*

Introductory Note:

The Child Health Stations are located in the densely populated areas of Providence, in rooms of school buildings, or in Community Centers. Their purpose is to provide weighing centers for those infants and pre-school children whose mothers have not scales in the home; and to provide centers for physical examination and medical health supervision of those infants and pre-school children whose parents are financially unable to provide such services through private physicians.

The baby of a mother delivered at a maternity hospital shall not be accepted for health supervision at a Child Health Station without investigation, if a rate of $50.00 in cash has been paid the hospital for service and care. A District or City Nurse shall make the investigation and after considering the conditions found shall form her opinion as to the eligibility or ineligibility of the baby for admittance to the Health Station. If the nurse considers the baby ineligible for the Health Station, she shall urge its regular medical health supervision by her private physician. If the baby is obviously eligible

for the Child Health Station, the nurse shall give to the mother a signed card bearing the list and locations of the Stations and instruct her to take it to the nearest Child Health Station at her first visit with her baby. In case of doubt a letter shall be sent the family physician or obstetrician asking him if he feels the child is a suitable case for attendance at the Health Station and enclosing a form for his reply.

If a baby is brought to the Station without a recommendation from a physician or nurse, the physician who has previously cared for the infant or otherwise the obstetrician, shall be mailed a letter and the same procedure shall be used in the cases of a pre-school child who has been under the care of a private physician within the previous six months.

The name of the family physician shall always be recorded on the child's record card.

Rules Governing the Child Health Stations

Each infant or pre-school child admitted to the Health Station on its first visit is weighed and has a brief history taken and recorded by the nurse. It is then given a complete physical examination by the physician and the findings recorded on its card. The proper feeding and other hygienic measures are then discussed with the mother. Defects or diseases shall be briefly explained to the mother and she is impressed with the desirability of taking the child to her physician for treatment. A form shall be filled out noting the defects found and addressed to the patient's physician.

Breast-fed infants are expected to return to the Health Station at least once a month and bottle-fed once in two weeks. Pre-school children should return at least once in three months. All babies not gaining properly should be seen by station physician and all pre-school children should have a physical examination by the physician at least twice a year and after any illness or operation.

It is especially important that no medical treatment whatever shall be given at the Child Health Station, even for colds, pin worms, eczema, etc. This is for two reasons; in the first place if children are brought in for minor ailments and treated for them, the main function of the Health Station is obscured and less time and attention is given to the routine examination; secondly, if any treatment is given, the Health Station physician is led into the false position of giving free treatment to the patient of another physician. If treatment is required, the private physician, the hospital clinic, or accident room, and the City physician are always available. In every such case, instructions must be given to take the child to his regular physician, as it is only by co-operating between the Health Station and other physicians that good results can be obtained.

It is considered inadvisable to attempt to standardize the methods of feeding, but in general it is recommended that breast feeding be continued till the baby is six to nine months of age. It is recommended that babies artificially fed shall be given sterilized milk up to one year of age and after that should receive a pasteurized milk, preferably of the grade "A" standard.

Cod liver oil is recommended for all babies.

It is recommended that mothers be advised to have their babies vaccinated against small-pox at two months of age and immunized against diphtheria at six months of age.

It is recommended that between the second and third birthday the child begin regular attendance at the office of a private dentist or at a dental clinic.

Rules for Nurses

The Child Health Station nurses shall co-operate closely with the private physicians by refusing admittance to any child showing symptoms of illness and instructing the mother to take the child to her regular physician at once.

The Child Health Station nurses shall do their utmost to see that the advice and instructions of the station physician are carried out in the home.

No nurse shall prescribe or change a formula *except in emergency* and shall then get in touch with the family physician or Health Station physician concerning it.

The nurses may advise mothers to give their babies a little zweiback, cereal and soup after four months and strained vegetables after five months of age. They may advise orange juice, tomato juice and cod liver oil, or its equivalents to babies after five weeks of age not under the supervision of a private physician. (This applies only to normal babies.)

Nurses may strap a protruding umbilicus and refer the baby to a private physician or clinic.

In case of diarrhoea or vomiting, the nurse may advise the mother to omit feeding (substituting boiled water) and to consult a doctor immediately.

Nurses shall not advise medication of any kind.

THE CONGENITAL SYPHILIS*

By Max J. Exner, M.D.

New York, N. Y.

Congenital syphilis is one of the most serious and tragic menaces to human-kind. For the child the possibilities are that he may succumb to the spirochete in utero—perhaps the most fortunate result; that he may die soon after birth or after a miserable existence within the first two years of life; or that he may survive physically or mentally blighted, always with the prospect of late crippling or killing lesions. To the family the syphilitic child often brings the seeds of mental anguish, economic loss, family discord, disruption, or tragedy. The belief of some authorities that about 75 per cent of women bearing syphilitic children have contracted the disease in wedlock suggests that the family significance of the congenital infection is not only that of an ailing or defective child. It cuts at the very basis of marriage and family life. To the State every congenitally syphilitic child is a potential social tragedy, for the greatest asset of the State is its healthy, well-endowed children, and the sound basis of its structure is the happy, harmonious and effective family.

It is highly appropriate and urgent that in any discussion of congenital syphilis the major emphasis be placed upon prevention. The problem of preventing congenital syphilis is really a simple one. The means and skill for its accomplishment are within our hands. There is no phase of preventive medicine which we can approach with greater confidence or in which we may achieve more dramatically striking results. It is wholly a question of early diagnosis and prompt and adequate treatment of the syphilitic pregnant woman. If the diagnosis of syphilis in the pregnant woman can be made early and treatment begun by the middle of the period of pregnancy, a non-syphilitic child can be assured in almost all cases. Treatment is now rather generally available. There is nothing in pregnancy normally to contra-indicate anti-syphilitic treatment. Indeed, pregnant women tolerate it exceptionally well. Often a moderate amount of treatment serves to protect the child.

Dr. Laurent, at St. Etienne, France, has interesting data on 213 women studied before and after they had treatment. Of the pregnancies occurring without treatment, 73.5 per cent terminated fatally for the child; 26.5 per cent were alive at three months. Of those alive, it is probable that at least half will die in the first five years and that of those surviving infancy, only a few will be apparently normal.

With treatment, the pregnancies of these same women terminated in a result that stands in impressively striking contrast. Nearly 92 per cent were alive at three months; only 8 per cent terminated fatally for the child. And of those alive, it is probable that all will be healthy, non-syphilitic children. These results are but typical of those achieved by all who apply modern methods of diagnosis and treatment of syphilis in pregnancy.

The failure to diagnose syphilis in pregnancy is the outstanding shortcoming that blocks our full possible achievements in this aspect of preventive medicine. Obviously the problem calls for a blood test—Wassermann, Kahn or other recognized test—upon all pregnant women in hospitals, prenatal clinics *and in private practice*. The certain diagnosis of syphilis in pregnancy is quite impossible without the blood test. In 14 studies of a total of 58,000 unselected cases in 30 clinics there was revealed the presence of syphilis ranging from 3 to 23 per cent. These and similar data abundantly justify the routine blood test upon women in prenatal clinics.

The greatest reluctance to application of the blood test to all pregnant women is found among the private practitioners. This is the sector in the battlefront in which the conquest of this public health menace chiefly halts.

We cannot take time to discuss anti-syphilitic treatment of pregnant women in detail. It does not differ essentially from modern modes of treatment of syphilis in general. The arsenicals, together with the heavy metals, are used, their combinations and proportions being varied according to the time treatment is begun and to other needs of the patient. If treatment is begun late, a maximum proportion of the arsenicals early is called for. While treatment in all cases should be vigorous, it should not and need not be excessive, remembering that the kidneys are already carrying extra burdens in pregnancy.

It is now generally regarded as established that in almost all, if not all, cases the infection is transmitted from the syphilitic mother to the child in utero by way of the blood stream, through the placenta. It is a significant fact that syphilis may be

*Read before the Rhode Island Medical Society, June 1st, 1933.

transmitted from husband to wife and from mother to child in stages of their disease in which the blood Wassermann reaction is negative. The disease tends somewhere in its course to become latent and to remain so for periods ranging from months to many years without clinical evidence, in which periods the blood Wassermann may be positive or negative or vary between the two. Nevertheless, the male may, during this quiescent stage of the disease, in which he is likely to consider himself cured—if he is aware of his infection at all—infect his marital partner. Pregnancy exerts commonly a powerfully inhibiting effect upon even an acute syphilitic infection in the woman. In many instances the Wassermann reaction in such latency is negative. Yet the disease is potentially infectious as regards the fetus or child.

The duration of syphilis in the mother is probably an important factor in determining infection of the child. The more recent the infection of the mother the more likely it is that the infant will be infected.

The accumulated evidence points to the fact that in the majority of cases the fetus is infected during the latter half of pregnancy. The histologic changes in the placenta are found most frequently after the seventh month, and they have apparently not been described before the fifth month.

It is believed that the period in the pregnancy in which the fetus or child becomes infected, chiefly determines the outcome as to whether a dead or living child is to be born. The earlier in pregnancy the fetus becomes infected, the greater is the likelihood of the child being born dead. It is probable that children born alive, and especially those in whom clinical symptoms of syphilis do not appear for some months, are those infected late in the pregnancy. When the infection reaches the fetus or child in utero, there results quickly a generalized spirochetaemia to the virulence of which the immature tissues and organs offer little resistance. The earlier in pregnancy the infection occurs, the more advanced is the destructive process likely to be at term, if not complete earlier.

Studies among older children show a much lower prevalence than among infants of the same social strata, this fact being accounted for probably by the high infant mortality caused by syphilis. In one of the Jeans-Cooke studies of 5,185 infants and children attending an out-patient clinic in St. Louis, syphilis was diagnosed in 2 per cent. When, however, the group was classified according to age, the percentage among the infants was 4.9 and among the older children, 1.5. Stokes states that the incidence of congenital syphilis in the child population as a whole, based upon a wide variety of estimates, ranges from 3 to 5 per cent.

As to the family effects of congenital syphilis, Jeans and Cooke derive the following summary results from their own studies and those by others among families similarly selected:

> Approximately 25 per cent of all the pregnancies in untreated syphilitic families resulted in miscarriage or stillbirth. (Doubtless not all caused by syphilis.)
>
> Approximately 20 per cent resulted in living births, the children of which later died.
>
> Approximately 40 per cent of the pregnancies resulted in children who were living and syphilitic at the time of the survey.
>
> Approximately 15 per cent of the pregnancies resulted in children who were living and non-syphilitic.

We will note briefly the early manifestations of congenital syphilis. In congenital syphilis, there is no "primary" stage, as in the acquired form. The infection is generalized from the beginning. The "early lesions" of congenital syphilis which appear in infancy correspond to the secondary lesions of acquired syphilis and the "late lesions" of congenital syphilis which appear in childhood or adolescence correspond to the tertiary lesions of acquired syphilis. The term "fetal syphilis" is applied to the lesions which develop before birth and are present in stillbirth or in the child at birth.

Most syphilitic infants show no visible evidence of the disease at birth. When it does manifest itself at birth, it usually denotes a virulent infection. Stokes says, "The sooner the symptoms appear the more serious the prognosis." In about two-thirds of syphilitic infants, clinical manifestations appear within the first two months, and in but few cases are they delayed beyond six months. In some cases they may not appear for a year or more. Only rarely do clinical signs appear before the Wassermann reaction in the blood becomes positive.

The lesions of infantile syphilis are chiefly those of the skin, mucous membranes, bones and nervous system. Occasionally the eye is involved. As in the secondary stage of acquired syphilis, so in the

congenital form the lesions of the skin and mucous membranes predominate. In addition to these about 20 per cent of patients present bone lesions and about 5 per cent lesions of the nervous system.

After the disappearance of the early skin lesions there may take place a recurrence of lesions of different types, chiefly condylomata, mucous patches, granulomata and papular and serpiginous syphilids. In these lesions spirochetae may be demonstrated.

The manifestations of late congenital syphilis, corresponding to the tertiary lesions of acquired syphilis, are eye lesions, mostly keratitis; neurosyphilis; bone and joint syphilis; gummata and deafness. They occur mainly, though not exclusively, between the ages of two and fifteen.

Interstitial keratitis is by far the most frequent of the late lesions, associated often with iritis and chorioretinitis and other pathologic conditions of the eye. In the St. Louis group, 63 per cent of the children over five years of age with clinically active syphilis had keratitis. In the majority of cases the condition is bilateral.

Syphilis of the joints occurs at all ages, but most frequently between the ages of five and ten. The knee is the joint most frequently involved and when it is, the condition is in most cases bilateral.

Bone syphilis is chiefly of two types: The most common is osteoperiostitis, a diffuse hyper-plastic process. Less common are localized gummata. The most characteristic feature of osteoperiostitis is a diffuse thickening of the periosteum and gradual thickening of the underlying bone. The saber shin, one of the common stigmata of congenital syphilis, illustrates the result of this inflammatory process. Frequently, the condition is accompanied by pain which tends to be more severe at night.

Gummata also are most common in the tibia. In contrast to the hyperplasia of osteoperiostitis, gummata are destructive lesions, sometimes to the extent of causing pathological fracture. They tend to ulcerate to the surface. The process is decidedly chronic and resistent to treatment, producing some of the most persistently Wassermann-fast cases.

Gummata of the soft parts occur much less frequently. They are located most often about the nose and throat.

Deafness in syphilitic children is relatively uncommon. It is found most frequently between ten and fourteen years of age. It occurs much more frequently in females than in males. The condition is always bilateral. When deafness has become total, the condition is permanent.

Among all the manifestations of late congenital syphilis, neurosyphilis is by all odds the most important. By the time neurosyphilis is clinically recognizable, the damage already done is usually irreparable.

It is to be assumed that in the early general spirochaetemia which occurs in every syphilitic infection by way of the blood stream, spirochetae reach the nervous system. Yet not all syphilitic individuals develop neurosyphilis. What factors determine the localization is not yet understood. It is true, however, that active syphilis in one part of the body tends to inhibit activity in other parts. Patients with manifest neurosyphilis frequently have little evidence of syphilis elsewhere, and vice versa.

Some present-day authorities believe that involvement of the nervous system in hereditary syphilis is more frequent than many accounts would indicate.

A much greater prevalence of neurosyphilis in white children as compared with Negro children is noteworthy. In adult neurosyphilis similar preponderance of incidence among whites as compared with Negroes is found. Whatever other factors may enter in to influence the localization, it is difficult to escape the conclusion that there exists a definite predisposition to neurosyphilis in the white race.

Infants with neurosyphilis do not always show a positive spinal fluid Wassermann in the early months of life. The positive reaction may at times be delayed until after the third month. In general the conclusion seems to be justified that the involvement of the nervous system, in children with congenital syphilis, occurs during the early spirochaetemia *or not at all*. This fact is important in its bearing on diagnosis, prognosis and treatment.

Some authorities of today believe that all neurosyphilis begins as a vascular process. Since the infection occurs by way of the blood stream the early lesions are in and about the blood vessels of the meninges. From these sites the infection tends to progress into the parenchyma of the brain and nervous tissues. Motor paralysis and mental deterioration are usually the most prominent indications. Meningitis, hydrocephalus, convulsions and the various forms of paralyses and epilepsy are the conditions most commonly described.

Optic atrophy due to syphilis may occur any time in childhood, though this lesion is rare.

In addition to these more or less localized lesions, a more diffuse degeneration of the cortex often occurs in which the clinical manifestations are chiefly mental. Syphilitic dementia and paresis are common classifications. Tabes dorsalis occurs but it is a relatively infrequent manifestation of congenital neurosyphilis. No detailed treatment of the various types of neurosyphilis can be undertaken in this paper.

Latency of the infection in congenital syphilis undoubtedly occurs much more frequently than is generally suspected. The actual incidence could be determined only by routine blood examinations, which few are making. Apparently few infections in young children are being diagnosed except those with manifest lesions. In the St. Louis series more than half of the syphilitic children beyond infancy manifested no signs of clinical activity when the child was first seen. Practically all syphilitic infections in children become latent at some period during the disease and the period of symptom-free latency may continue for a number of years.

Many children with latent congenital syphilis, as well as those with active lesions, manifest the "scars" of earlier syphilitic activity known as stigmata which, while not all strictly pathognomonic, render the case highly suspicious. The stigmata appear mostly in later childhood. Hutchinson's teeth, the mulberry molar, rhagades and the saber shin are the most definitely pathognomonic of syphilis.

While laboratory tests must be relied upon to confirm the identification of congenital syphilis, the recognition of the clinical signs remains of the utmost importance. The more common ones have been sketchily reviewed. The prevalence of latent stages in the parents suggests that not too much emphasis be placed upon securing a history of syphilis in the parents. A history of syphilis in one member of the family calls for Wassermann tests upon all the members. While in many cases the clinical manifestations of congenital syphilis are almost unmistakable, they may at times be confused with non-syphilitic affections, hence the diagnosis must be confirmed by laboratory tests. In neurological involvement the laboratory tests must be almost wholly relied upon. Fortunately in such cases the blood Wassermann is almost always strongly positive, and when it is not, the spinal fluid will show the characteristic changes. Indeed, strongly positive Wassermann reaction is generally characteristic of untreated hereditary syphilis, and the reaction does not tend to become weaker or spontaneously negative during childhood as it tends to do in syphilis of the adult. In the first two months of life syphilitic children may give negative reaction, the fixing substances not yet having developed in the blood, and non-syphilitic infants may give a positive reaction, the fixing substances from the blood of the syphilitic mother being transmitted to the healthy infant through the placenta. After two months syphilitic infants will usually give positive reactions and non-syphilitic infants negative reactions. In congenital syphilis the positive blood reaction tends strongly to persist even during the prolonged and intensive treatment, in contrast to acquired syphilis in the adult in whom the blood reaction is much more amenable to modification.

The prognosis of congenital syphilis is most grave in infancy. The disease seems to cause a decreased general resistance to pyogenic infection, hence many die from secondary intercurrent infection. In older children the mortality is confined mainly to those having neuro-syphilis.

Clinical symptoms usually disappear promptly under adequate treatment, with the exception of certain neurological cases, and of interstitial keratitis and arthritis which may give way slowly. It has been already stated that once clinical signs of damage to the nervous system have appeared, even adequate treatment is not likely to do more than arrest its further progress.

Space forbids any detailed discussion of treatment of congenital syphilis. The drugs employed are the same as those used in the treatment of syphilis in the adult, namely, the arsenicals together with mercury, bismuth and the iodides. While possibly less active a drug than arsphenamine and neoarsphenamine, sulpharsphenamine has come into favor in the treatment of congenital syphilis because of certain advantages. It is easily prepared for injection; it can be given intramuscularly or subcutaneously; it is comparatively non-irritating when so given; and in solution it is the most stable of the arsenicals. Tryparsmid, while of low spirilicidal action, is of advantage in cases of neural involvement because of its greater power to penetrate the nervous system. It may be given intramuscularly or intravenously, the latter route being preferable. The drug is to be used only supplementary to other antisyphilitic treatment.

While the courses of treatment of congenital syphilis adopted by various authorities have certain fundamental ideas or principles in common, each has his own modifications based upon his experience and convictions. As an example of a treatment regime based upon long and wide experience we present that of Jeans and Cooke.

A. *Routine Treatment for Ordinary Cases*

Especially in infants with early syphilis.

1. Mercuric chloride intramuscularly once weekly.

2. Sulpharsphenamine once weekly during the first three weeks of course.

In late congenital syphilis or in Wassermann-fast cases, the following additional bismuth therapy is added:

3. Bismuth intramuscularly once weekly during the last six weeks of course.

The sulpharsphenamine is given on the same day as the first three mercury injections and the bismuth simultaneously with the last six doses of mercury.

B. *Intensive Treatment Given at Intervals.*

This is intended particularly for patients who cannot maintain continuous treatment because they reside at a distance and are able to report for therapy only at intervals. It consists of the following:

1. Sulpharsphenamine every second day for three doses.

2. Bismuth or bichloride of mercury intramuscularly co-incidentally with the first and third sulpharsphenamine treatments.

This routine is repeated every six to eight weeks and in the intervals mercury by mouth is prescribed.

C. *Tryparsamid Treatment for Late Neurosyphilis*

1. Sulpharsphenamine once weekly for the first three injections.

2. Tryparsamid once weekly for the next six weeks.

3. Mercuric chlorid or bismuth intramuscularly each week during the course, the two drugs being employed in alternate courses.

It will be of interest to note the treatment results accomplished during a ten-year period by Jeans and Cooke, employing essentially the treatment regimes just described.

Of the group of 401 infants with congenital syphilis under one year of age, 125 received treatment for six months or more. Of these 90 remained cured at least three years; 35 were not serologically cured.

Of the group of 542 children over one year of age, 66 received treatment more than six months but less than a year. Of these 8 were cured and 58 were not serologically cured. Of the one hundred and ninety-three who were treated more than a year, 85 (44 per cent) were cured; 108 were not serologically cured. These data throw forceful emphasis upon early and adequate treatment. The earlier treatment is begun the more favorable is the prognosis. Delay of treatment into the second year of age very greatly diminishes the chances of recovery. Jeans and Cooke say, "A minimum of nine months of treatment (four courses) for infants and twice that amount for older children is advisable. After clinical and serological cure, the child should have a physical examination and blood Wassermann test every six months for several years."

Schamberg and Wright say, "Certain it is that treatment of syphilis in a child should begin as soon as the disease is discovered. This treatment should be continued vigorously until there are no signs or symptoms of the disease and until the Wassermann reaction is persistently negative. After this, treatment need not be intensive, but should be continued at intervals until the child is fully grown."

In closing we return to the emphasis upon prevention, (a) the outright prevention of congenital syphilis by the timely diagnosis and treatment of every syphilitic pregnant woman. In view of the frequency of negative serology in these cases careful attention to history of infection as well as to clinical manifestations and blood tests is important. (b) The prevention in syphilitic infants of the killing or crippling consequences of the infection by early diagnosis and the earliest possible and adequate treatment. In acquired syphilis in the adult, diagnosis in the primary stage followed by immediate and adequate treatment offers a permanent arrest or cure of the disease in virtually 100 per cent of cases. While in congenital syphilis early diagnosis and treatment does not offer quite so hopeful a prognosis, we have already shown the enormous advantages of the procedure and of the striking dangers of every delay.

The means for the prevention of congenital syphilis is in the hands of the medical profession. Shall we remind ourselves that opportunity is the measure of responsibility?

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EDITORIALS

REGRETTABLE OVERSIGHTS

In a recent contribution in the *Journal of the American Medical Association*, a correspondent* decries the too frequent diagnosis *by exclusion* of minor psychoses, especially hysteria and neurasthenia, to account for physical symptoms of obscure origin. He feels that this method of diagnosis not only postulates more adequate and absolute criteria for the conditions excluded than are at present at our command, but also implies lack of positive findings for the condition to which the symptoms are attributed. In this opinion we heartily concur.

We recall most vividly a case in point. A young woman who some time before had had an "interval" appendectomy performed at another institution, was admitted to a local hospital complaining of severe abdominal pain. Since her vital organs were all normal, and the common laboratory procedures gave negative results, it was concluded after roentgenographic investigation of her gastrointestinal, biliary, and urinary tracts that her symptoms were due to adhesions following the first operation. Because of the persistent and disabling

*Stevens, George S.: J.A.M.A. 101:876 (Sept. 9) 1932.

character of her pain, an operation for lysis of adhesions was at length resorted to. After this operation her pain persisted for some time, but eventually cleared up and she was discharged. A short time later, however, she was readmitted with exactly the same complaint. This time, because she evinced considerable emotional instability, she was seen in consultation by the neurological service, who under pressure concurred in the diagnosis of hysteria. From the moment she was tagged with that diagnosis no further attention was paid to her symptoms, which gradually subsided and she was again discharged. Subsequently she was readmitted on several occasions with identical attacks, but the fateful diagnosis still clung to her, and nothing further in the way of investigation or treatment was accomplished. Finally she was admitted to another hospital, where, after a dispassionate and unbiased review of her history, a third operation was performed and a diseased gall-bladder containing calculi was removed—with complete relief of her long-standing complaints.

We could go on multiplying instances in which an ill-advised diagnosis of hysteria has stifled further diagnostic investigation and subjected the patient to much unnecessary suffering, but this single illustration is ample support for our thesis. Far too often the embarrassed diagnostician admits defeat by consigning a patient to the limbo of the minor psychoses when persistent study would reveal an organic basis for his symptoms. We trust that in the future this practice may become increasingly infrequent.

ESTIMATION OF AND METHODS OF MEETING SURGICAL RISKS AND POSTOPERATIVE COMPLICATIONS IN SURGICAL DISEASES OF THE BILIARY TRACT*

By Frederic V. Hussey, M.D.
199 Thayer Street, Providence, R. I.

During the past ten to twelve years a vast amount of experimental work has been done and clinical material studied concerning liver function and the cause or causes of postoperative hemorrhage in jaundice. Because of the knowledge gained therefrom, we have been very much aided to a more intelligent and scientific handling of patients suffering from gallbladder and biliary duct disease. Because of a more thorough understanding of the factors which influence liver function, it is generally conceded, I think, that our operative results in those cases have been much improved. It has been estimated that the immediate mortality has been reduced from 6-7% to the neighborhood of 2%. In view of what has been gained in our knowledge, it appears that one cannot urge too strongly the importance of preoperative study of liver function in each individual case to determine as accurately as possible the operative risk. This should pertain not only to jaundiced cases, but to those cases also which, on the surface of things, apparently are in good condition for operation. If we will only carry out routinely such a study, we undoubtedly will remove from our list of unfavorable results, many cases the loss of which at the time will seem so inexplicable.

It is the purpose of this paper to take up only the type of biliary tract disease which presents the opportunity of study and not dwell upon the acute type which demands immediate or quick operation.

The functions of the liver are undoubtedly many, but one of the principal is that of storing up glycogen in the liver. Another very important function is the function of detoxication, and in this function glycogen plays a very important part. The functions of excreting bilirubin in the bile and the manufacture of fibrinogen are also important. These functions are, of course, interfered with by anything which reduces liver capacity.

In studying the experimental work which has been done, one in many instances is struck by the great discrepancy in results, but certain factors do stand out which show rather conclusively that a pronounced reduction in liver function adds considerably to the risks of operation.

It is a well known fact that disease of the gallbladder and biliary ducts produces an infection of the liver which probably takes place through the lymphatic system. It has also been established that infection of the liver of sufficient severity or length of standing reduces liver function.

Damage to the liver is also caused by any obstruction to the flow of bile. This damage results in a decrease of the stored-up glycogen, which substance, as said before, plays a great part in the detoxicating ability of the liver. It had been known for some time that certain poisons, such as chloroform, phosphorus, carbon tetrachloride, etc., re-

*Read before the Rhode Island Medical Society, June 1st, 1933.

sulted in decrease of glycogen in the liver, and conversely, that a reduced liver glycogen content rendered animals more susceptible to those same poisons.

To quote Davis, "a liver well stored with glycogen is refractory to large doses of those poisons."

It is contended that glycogen acts in three principal ways:

1st—Helping to neutralize many exogenous and endogenous toxins.

2nd—Helping to repair the injured liver as demonstrated by Davis, Hall and Whipple.

3rd—Helping to reduce the prolonged time of coagulation in jaundice.

It has been shown that under proper conditions the liver has a rapid power of regeneration. In experiments, Davis, Hall and Whipple claim that a high carbohydrate diet would cause a regeneration of liver tissue at about the rate of 100 grams a day. It has also been shown that in animals who have had a total hepatectomy that a high carbohydrate diet will postpone for some time fatal results.

In trying to devise methods of determining the degree of liver function, much work has been done which has resulted in the generally acknowledged value of three tests for that purpose. These tests are the so-called hepatic function test of Rowntree and Rosenthal, the icteric index test and the Van den Bergh test.

The Rowntree and Rosenthal test is based on the ability of the liver to excrete the substance—bromsulphalein, which is practically excreted no other way. The degree of liver function is determined by the degree of elimination from the blood of this substance in a given length of time.

Graham recently has been using a preparation of phenolte traiodophthalein which he claims is better in that a larger amount of the preparation can be given for the purpose of obtaining X-ray films of the gallbladder and also for the determination of liver function. He claims that in order to get the best results in determining liver function it is necessary to put a sufficient amount of work upon the liver to make the test adequate.

The icteric index test and the Van den Bergh test are based upon the presence of bilirubin in the blood serum. The value of these tests in frank jaundice has been recognized for some time, but possibly one of the most important features of these tests is the determination of latent jaundice, which means a content of from 6 to 15 milligrams of serum bilirubin to the 100 c.c. of blood. The Van den Bergh test is also applied for the purpose of determining whether a jaundice is an intra or extra hepatic type, and thus is of considerable value in determining whether jaundice is of the obstructive or hemolytic type.

In general it may be said that a sustained serum bilirubin of more than 15 milligrams to the 100 c.c. of blood means considerable injury to the hepatic cells. This is especially supported if the coagulation time of the blood is considerably prolonged. In cases in which there is a retention of 50% of phenotetraiodophthalein in the half hour, Graham refuses operation because of the undue surgical risk. Others who have used the Rowntree-Rosenthal test are also governed in their judgment of operability by the amount of retention of bromsulphalein at the end of the first and second hours. All of these cases showing high retention tests should be subjected to preoperative treatment for the purpose of improving the function of the liver.

The most efficacious method of treatment under those conditions is feeding, in one way or another, a high carbohydrate diet.

Beddard in 1908 was the first to advocate the treatment of hepatic disease by dextrose. In 1915 Opie and Alford also demonstrated that dextrose lessens susceptibility of rats and dogs to necrosis of the liver. Others also, such as Bockelmann, Bloch, Baehr, and Klemperer, showed beneficial effects of administration of dextrose in such conditions as acidosis of pregnancy, subacute yellow atrophy of the liver, arsphenamine injury, mushroom poisoning and chronic cirrhosis of the liver. This protective action of the carbohydrates is based on the ability of the liver to store up glycogen from them. It has been said that a damaged liver has lost its ability to store up glycogen, but it has been contended by some investigators that the lowering of glycogen in the liver was more likely due to the inability of the liver to manufacture sufficient glycogen from non-carbohydrate sources and because there is not enough carbohydrate available for storage as glycogen. The only other place of storage of glycogen to any amount is the muscles and heart and for some reason this storage is only available to a small degree for replacement of the decreased glycogen of the liver.

Patients are put to bed and put upon large doses of carbohydrates by mouth preferably, if they can

tolerate it, or in case of lack of toleration by mouth, a 10% solution of glucose can be given intravenously. The advantage of giving carbohydrate by mouth is that it is utilized as easily, if not more so, by the liver for the storage of glycogen and larger amounts can be given, even as high as 300 grams per twenty-four hours. If glucose is given intravenously, 100 grams in twenty-four hours should be administered. Glucose by rectum is of no particular value because very little of it is taken up by that way. As Graham says, under this method of treatment, patients who have had an original retention of as high as 90% in the half hour, in two to three weeks' time have had an improvement indicated by a retention of from 30 to 40% in the half hour. Such patients can be operated on with a marked degree of safety.

The question of the use of medical drainage of the biliary tract in these cases is one which is interpreted variously by various surgeons. While the procedure has been reported to produce excellent results by Lyons and others, a large number of surgical clinics have discarded it preoperatively as a method of treatment and are using it principally for diagnostic purposes.

However, I personally have seen cases in which preoperative treatment, consisting of feeding of a diet high in carbohydrates plus a course of medical drainage, has resulted in great benefit. Whether this is due to the effect of the high carbohydrate diet or to a combination of the two I have not been able to determine, but I believe that medical drainage may play some part, even though it may be small.

To my mind, the most important role that the Rehfus or Levin tube plays is that of establishing continuous drainage of the upper gastro-intestinal tract, postoperatively, in those cases which develop a condition which might be called liver uremia with toxic vomiting. In those instances, I am thoroughly persuaded that the Rehfus or Levin tube, together with glucose intravenously, is a life-saving measure.

The question of jaundice of the obstructive type in cases requiring operation is a very important one. The exact process of the production of jaundice is still somewhat indefinite, but it is based on the theory of a breaking down of the hemoglobin of the red cells into bilirubin, principally by the reticulo-endothelial system and the removal of the bilirubin from the blood stream through the polygonal cells of the liver and the excretion of it through the bile. The outflow of the bile being obstructed results in a return of the bilirubin to the blood stream, principally through the lymphatic channels and somewhat directly through the blood stream. When the sustained content of bilirubin in the blood reaches a sufficiently high point, it becomes deposited in the tissues and gives rise to the condition of jaundice. It is in the condition of jaundice that the Van den Bergh reaction may have its particular application because this test permits of a quantitative and qualitative estimation of the bilirubin.

It would appear that bilirubin in passing through the polygonal cells of the liver undergoes some type of modification, possibly a simplification, which gives a different reaction with the diazo reagent of Ehrlich than the bilirubin which has not passed through those cells. This test in many instances is of great assistance in determining whether a type of jaundice is hemolytic or obstructive. This applies to cases of so-called "silent stone" in the common duct, which cases are considerable in number. Lahey claims that stones of the common duct are much more common than we realize, and that in the year of 1931, he opened the common duct in 41% of his cases and found stones in 19% of those.

Outside of the amount of liver damage done and the decrease in liver function caused by stones in the common duct producing jaundice, the great risk in jaundiced patients to be operated upon is the risk of postoperative hemorrhage. The reason for the tendency of jaundiced patients to bleed is not thoroughly understood.

According to Wangensteen, there may be three factors which play a part in the hemorrhagic tendency in jaundice:

(1) The presence of bile pigment and bile acids in the blood.

(2) The functional deficiency of calcium due to the increase in bile salts and bile acids in the blood and urine.

(3) A variation in the prothrombin and fibrinogen contents of the blood.

None of these theories have been proven.

A vast amount of work has been done to determine the cause of hemorrhage in jaundice based principally on a study of the calcium content of the blood, also somewhat on the fibrinogen content of the blood. It is pretty well understood that the liver is the principal source of the fibrinogen in the

blood, and it has been suggested that a damaged liver being unable to manufacture fibrinogen in sufficient amounts, may cause the tendency to bleed. This idea is hardly supported by experimental work. It has been shown that a damaged liver may, for the time being, manufacture an excess of fibrinogen.

On the other hand, others like Peters and Van Slyke, have admitted that severe injury to the liver in many cases is attended with a decrease in fibrinogen, and most of the work tends to show that when there is a sufficient loss of liver tissue because of failure in the demands of the body, fibrinogen decreases. They do not, however, think that the decrease in fibrinogen parallels the amount of liver damage. Efforts have been made to determine the question of liver function by the amount of fibrinogen in the blood, but the results have been so inconclusive that they cannot be relied upon.

As I said before, most of the work that has been done is in an attempt to account for the tendency to hemorrhage by the lack of available calcium. It is contended by some that the calcium enters into a combination with bile pigment and cannot be utilized in its role of sustaining a normal coagulation time. The results of this work, also, have been so inconclusive that it is generally recognized now that neither the time of coagulation or the bleeding time can be accepted as an index of the risk of postoperative bleeding. Neither does the degree of jaundice nor the length of time of jaundice give us any satisfactory information on this subject. This would throw out the icteric index and the Van den Bergh tests as being of any value. It has been shown that calcium in itself does play some part in liver regeneration and probably if it is of any value, it is of value preoperatively in helping to restore liver function and for this purpose has been and is being given by various surgeons.

After all, normal coagulation time is related to normal liver function. So it may be that the chief factor in the bleeding tendency in jaundice is due to the presence in the blood stream of abnormal products caused by liver destruction and decrease of liver function.

Interesting work has been done by Linton in the way of being able to foretell the risks of hemorrhage by the sedimentation test. This work has been supplemented and carried out in the Lahey Clinic and it seems as if it may be a valuable means, not of being able to definitely foretell in which case bleeding will occur, but in establishing the tendency to bleed. As this test is influenced by certain factors such as (1) serious infection, (2) fever, (3) extensive malignancy, (4) pregnancy, (5) anemia, etc., it should be interpreted accordingly. Fever being the principal complicating factor, the rate should be taken during an afebrile period. Linton, I think, believes that he has been able in this way to definitely foretell the risk of hemorrhage, while Clute and others of the Lahey Clinic have found instances in which rapid sedimentation rate has been followed by bleeding, and cases of slow sedimentation rate which have not bled.

Cases of jaundice, preoperatively, in which there may seem to be, as proved by the sedimentation test, a tendency to bleed, can be prepared by feeding them carbohydrates by mouth, or by giving them intravenous solutions of glucose and calcium to improve liver function and by giving them direct blood transfusions. Transfusion may be done the day before operation or the morning of operation. In cases of actual bleeding, postoperatively, calcium and various other preparations fail too often to permit much reliance being placed upon them. The one and only procedure which will give the best results is blood transfusions, and even in some cases these will fail.

The question of kidney lesions enters into the picture both before and after operation. While it is very important to have a complete check-up on the kidneys before operation with the idea of determining any degenerative changes present, we find many cases in which there are no manifestations of a diseased kidney pre-operatively, but which following operation are thrown into a profound degenerative process resembling uremia. This condition has been very aptly called "liver death." It is caused probably by some toxin produced in a diseased liver which acts directly on the kidneys. Autopsies on these cases have shown very pronounced degenerative changes in those organs.

Mann of the Mayo Clinic has definitely shown that very profound degenerative changes have taken place in many cases in the liver parenchyma in the bed of the gallbladder which has been removed. His idea is that this may be the seat of manufacture of powerful toxins which have been responsible for the kidney lesions. As a result he has suggested that it might be better not to suture over and close the gallbladder fossa but to leave it open for the purpose of better drainage.

The hepato-renal syndrome as described by Schutz, Helwig and Kuhn is characterized by rise of temperature and pulse rate about the fifth or sixth day, accompanied by abdominal distention and progressive oliguria with the appearance of albumin, casts and often red cells in the urine. With the increase in oliguria the patients lapse into delirium and then coma, the nitrogenous elements of the blood increase progressively and the urinary nitrogen becomes greatly diminished. Nausea and vomiting, often severe, and mucous surface bleeding, often becomes a prominent feature. Blood in large amounts is often found in the stools and the vomitus. The clinical picture then progresses to uremia with generalized low grade edema and almost anuria. They go on to state that a careful analysis of these cases suggests that the primary factor in the syndrome is due to a diseased liver and that kidney damage resulting is probably brought on by toxic products elaborated in the liver.

In addition to the customary method of treatment of such an infection of the kidney, they emphasize the great advantage of supplying the liver with glycogen by large amounts of sugar preoperatively on the theory that the detoxifying action of the liver is greatly increased when the hepatic cells have an ample glycogen storage.

Those who have had much experience in biliary tract surgery have, I think, been impressed considerably by the frequent association of myocardial changes in the heart accompanying diseases of the gallbladder and bile ducts. This, of course, carries with it also an associated diseased condition of the liver itself. Careful examination on many of these cases, in fact on most of them before operation, fails to reveal any definite underlying heart condition which would predispose to trouble postoperatively, and yet, on the second or third day following operation, and oftentimes during operation or immediately afterwards, serious heart symptoms are observed. It is oftentimes difficult and practically impossible to determine ahead of time in what cases to expect such a complication.

It seems to me that Marvin has stated the problem very well when he says, "In determining fitness for operation, a history of the patient's activities and symptoms is far more valuable than is physical examination, so far as the heart and circulation is concerned. If the individual is able to indulge in moderate activity without symptoms, no concern need be felt about the ability of the heart to sustain the very slight extra work entailed by a surgical operation, provided the anesthetic is properly administered."

He goes on to say that there is an important exception to this statement. There are several manifestations of heart disease that are notoriously apt to lead to sudden death, even with the patient at rest and apparently in fair health: syphilitic aortic insufficiency, complete heart block, aortic stenosis, and that form of heart failure known as angina pectoris. It is clear that patients with heart block or with angina will seldom be able to lead normal lives without symptoms. Therefore, the only important exceptions made to the statements above, are the syphilitic heart disease and aortic stenosis.

If there is early heart failure of the congestive type, attempts should be made to improve the state of the circulation by means of rest and digitalis before operation is performed. The presence of rales at the bases of the lungs is perhaps the best indication that such a procedure should be instituted. He also states that at present there is no acceptable evidence indicating that any useful purpose is served by the routine preoperative administration of digitalis to patients who do not have heart failure or auricular fibrillation. If the circulation is being normally maintained, it is impossible to improve it, and it has not yet been shown that the percentage of operative and postoperative complications is lowered by routine preoperative digitalization.

He also says, which I believe is a very correct statement, that the choice of a competent anesthetist is far more important than the choice of the anesthetic, and the greater the degree of heart failure, the more important this choice becomes.

Postoperatively, those cases which show heart disturbances respond best to digitalis treatment. There are many other complications which are met in biliary tract surgery, but these complications are not particularly prominent in this type of work as they are encountered following operations in general—such as pneumonia, atelectasis, etc. Therefore, a discussion of those complications will not be taken up.

In summing up—In cases of biliary tract disease in which operation is contemplated, too much emphasis cannot, I believe, be placed upon the attempt to determine the degree of liver function. If by function tests we can determine that there is considerable damage to the liver tissue, time should be

taken for treatment in order to bring about improvement. The best form of treatment in these cases is rest in bed with a diet rich in carbohydrates if they can be tolerated by mouth, or if not, glucose solution intravenously. As it has been suggested that calcium plays some part in liver regeneration, this substance may possibly be added with good effect to the carbohydrate diet.

In cases of jaundice, whether it be mild or severe, of short or long duration, the tendency to bleed postoperatively can be determined, judging from the results of Lindon, Clute and others, by the sedimentation test. This test will not tell us without failure in what case we will have bleeding, but it will apparently give us an idea as to what cases will have a tendency to bleed. To meet this postoperative complication, the best preoperative treatment is direct whole blood transfusions. Also, postoperatively, if bleeding does occur, this method of meeting it is still the best. Calcium apparently does not play much part in the control of this condition.

As to the postoperative complication spoken of as "liver death," there is apparently no way in which it can be foreseen. If it is met with, the method of treatment in vogue in acute kidney degeneration should be instituted, together with the routine treatment with glucose which, I believe, should be followed in all postoperative biliary tract operations. In those cases which are frequently seen postoperatively with almost constant vomiting of large amounts of foul fluid with symptoms which formerly may have been ascribed to acute dilatation of the stomach, but which probably are due to a toxic condition, I believe that the passage of either the Rehfus or Levin tube for the purpose of continuous drainage of the upper gastrointestinal tract is a life-saving measure.

MISCELLANEOUS

DIATHERMY TREATMENT OF DEMENTIA PARALYTICA: MICROSCOPIC CHANGES IN TREATED CASES

Walter Freeman, Theodore C. Fong and S. J. Rosenberg, Washington, D. C. (*Journal A. M. A.*, June 3, 1933), state that the substitution of diathermy for malaria in the treatment of dementia paralytica has, in their hands, met with almost complete failure. There were twenty-eight deaths in a series of fifty patients over a period of four years. While they admit that the patients were not of the best type, that the treatment may not have been sufficiently prolonged and that the use of arsenical therapy as an adjuvant was not pushed to the possible limit, the fact remains that, in comparison with the results from malaria, the benefit to the patients has been far from impressive. The difference becomes more notable as the period of time elapsed after the treatment becomes longer. In their opinion the early reports on the diathermy treatment of dementia paralytica were published after too short a period of observation, especially since even now it is less than five years since Neymann and King and Cooke first began their experiments.

TYMPANIC PLEXUS NEURALGIA: TRUE TIC DOULOUREUX OF THE EAR OR SO-CALLED GENICULATE GANGLION NEURALGIA: CURE EFFECTED BY INTRACRANIAL SECTION OF GLOSSOPHARYNGEAL NERVE.

Frederick Leet Reichert, San Francisco (*Journal A. M. A.*, June 3, 1933), reports the case of a patient in whom a preoperative diagnosis of geniculate ganglion neuralgia was made, but who at operation was found to have the tic-like pain consistently reproduced only when the glossopharyngeal nerve was touched. It was concluded, therefore, that the patient had a tic douloureux of the tympanic branch of the glossopharyngeus (Jacobson's nerve or plexus), and since her symptoms were identical with those of the patient of Clark and Taylor, their case undoubtedly was likewise a Jacobson's nerve neuralgia. From the study of this case and a review of the literature, the author concludes that there are at least two types of neuralgia or tic douloureux of the glossopharyngeal nerve. Over forty cases have been reported in the literature of the ordinary or complete glossopharyngeal neuralgia, which is characterized by paroxysmal attacks of lancinating pain, usually starting in the tonsillar region or base of the tongue and frequently radiating to the ear, often accompanied by salivation and induced by eating, talking or swallowing or by other movements of the pharynx and tongue. Partial involvement of the glossopharyngeus or Jacobson's nerve tic douloureux is a rare neuralgia of the tympanic branch of the glosso-

pharyngeal nerve which has been regarded in the literature as a tic of the sensory filaments of the seventh nerve and is more commonly termed geniculate ganglion neuralgia. It is characterized by paroxysms of stabbing pain in the external auditory meatus, often associated with other pains in the face and postauricular region, not induced by talking, eating or swallowing, and not associated with salivation. Intracranial division of the glossopharyngeal nerve has cured both types of these neuralgias.

CONGENITAL ATRESIA OF ALIMENTARY TRACT: DIAGNOSIS BY MICROSCOPIC EXAMINATION OF MECONIUM

Sidney Farber's, Boston, (*Journal A. M. A.*, June 3, 1933), simple procedure for the early diagnosis of congenital atresia of the esophagus and intestine is based on the constant presence in normal meconium of cornified epithelial cells, which are derived from the skin of the fetus and which are swallowed with the other amniotic sac contents to contribute to the formation of meconium. Microscopic examination of smears of normal meconium, when treated with ether, stained with Sterling's gentian violet and decolorized by acid alcohol, reveals large numbers of cornified epithelial cells. All other cells are decolorized by this method, thus permitting easy recognition of cornified cells. The absence of cornified epithelial cells in smears of meconium is proof of the existence of congential atresia of the alimentary tract.

TRICHOMONAS VAGINITIS IN CHILDREN

During the past two years, Lester E. Frankenthal, Jr., and Alfred J. Kobak, Chicago (*Journal A. M. A.*, June 3, 1933), observed four cases of Trichomonas vaginitis in children. All the patients were between the ages of 11 and 14 years. Three of these cases were seen before the onset of menstruation. In each patient a history of profuse, irritating vaginal discharge was elicited. On examination, the authors found in all four a bubbly, foamy, gray to green discharge which bathed the external genitals and irritated the surrounding skin. Vaginoscopic examination showed the vagina to be definitely affected, and the summits of the rugae contained small punctate hyperemic spots. The latter were especially noted around the cervix. The diagnosis of this condition is easy to make. Routine vaginoscopic and hanging drop examination should be made in all suspected cases. The local treatment in children is very difficult and unsatisfactory because of the virginal introitus and infantile state of the genitals. Improvement of local and general hygiene together with a well balanced diet is beneficial. The one patient limited to these measures made the most satisfactory progress. The course of this infection is prolonged in childhood and it is more difficult to effect a cure than in adults.

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Lester G. Ericksen, Dubuque, Iowa, and Leo G. Rigler, Minneapolis (*Journal A. M. A.*), state that hepatosplenography is of value as a routine preoperative examination in malignant cases. The authors have used this procedure in eighty-two clinical cases of various types without apparent harm and with gratifying results. It has been found to be of great value in gastro-intestinal malignant growths preoperatively. In the interpretation of roentgenograms, when in doubt a negative diagnosis is made. Certain phases of this procedure, which heretofore have not been emphasized, are: 1. The advantage of delayed elimination in the follow-up examination for the demonstration of the development of metastases. 2. The danger of delayed radioactivity of thorium after several years. 3. Its particular value in preventing needless surgery in cases of malignant growths of the gastro-intestinal tract. 4. The fact that roentgenograms should not be taken sooner than twenty-four hours following the last injection. 5. The observation of an area of rarefaction constantly seen in the region of the gall bladder fossa. 6. The unusual accuracy of the procedure.

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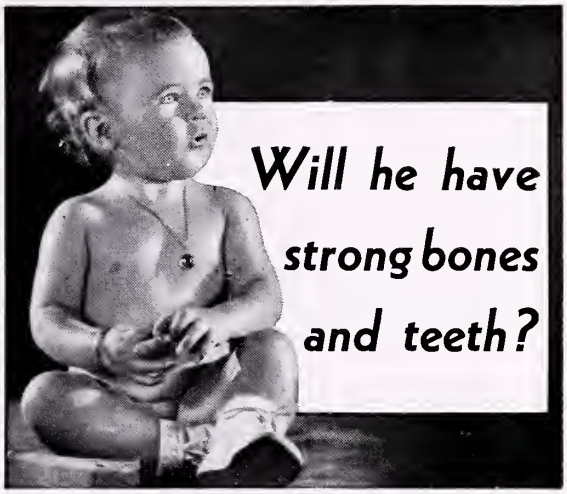

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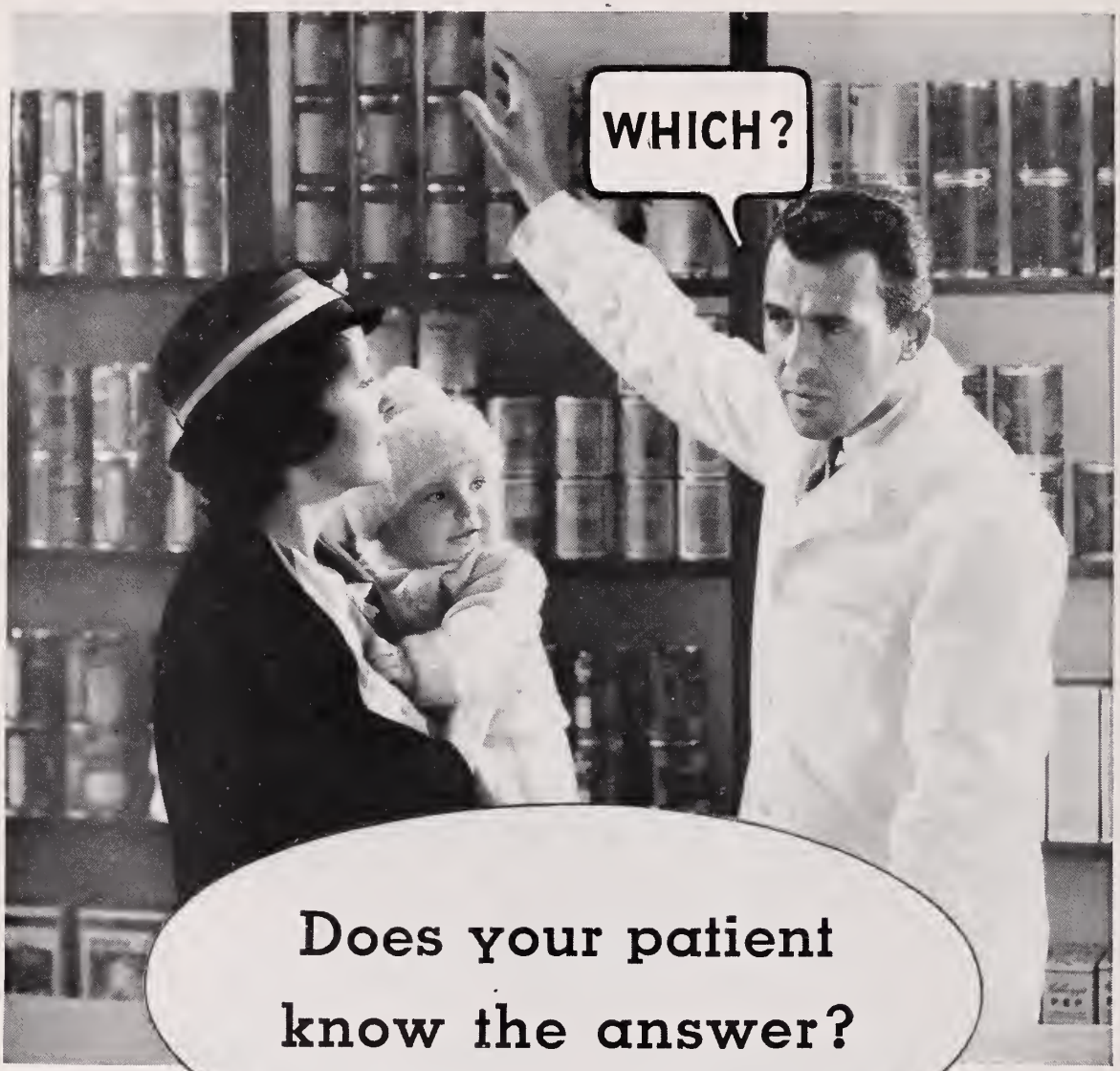

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ORIGINAL ARTICLES

THE CLINICAL DIAGNOSIS OF HYPOPITUITARISM: ITS RELATION TO MEDICAL PRACTICE AND LIMITATIONS AS TO TREATMENT*

By JAY PERKINS, M.D.
169 WATERMAN STREET, PROVIDENCE, R. I.

In order that you may get my point of view better I will briefly give you the origin of this work.

On January 27, 1918, a patient came suffering from long continued asthma and also asthenia. He was diagnosed as hypothyroidism and later as also suffering from hypopituitarism. He was relieved and staid under treatment. Between basal metabolism tests and clinical observations it was determined how much gland extracts he needed from time to time and he has been perfectly well now for a number of years though he has had no gland extract for two years.

On March 12, 1918, another patient came with the history of long continued asthma and who had just returned from Asheville with a diagnosis of tuberculosis. His trouble was a bronchitis and bronchopneumonia secondary to his asthma and he had marked asthenia. His primary trouble was hypothyroidism and he was restored to a good condition treated on this basis. He was afterwards convinced that his trouble was not of endocrine origin and died a few years later after gradually losing vitality as in hypoendocrine cases.

On March 20, 1921, a young woman was found to be suffering from pulmonary tuberculosis following an attack of influenza. Everything possible was done for her but no improvement took place in several months. I was seeing her once in two weeks in consultation and was impressed with the abnormal character of her flesh which, somewhat in rolls across her back, had a hard resistant feel. The subcutaneous tissues were much thickened. I asked of the attending physician permission to try endocrine treatment. With a shrug of his shoulders he said "All right, though I have no confidence in it." Basal metabolism was normal. Pituitary and ovarian extracts were used and improvement was steady to complete recovery and today she is a strong, active and healthy woman, though previous to endocrine treatment she had never had much resistance to anything. Making notes of abnormalities in her physical build and of her symptoms and as other patients showed these characteristics, also noting any additional abnormalities I built a diagnostic scheme by about 1926 which I have not materially changed since and which I give you today. Since this diagnosis was written William Engelbach has published three volumes on "Endocrine Medicine," Allen Winter Rowe a volume on "Differential Diagnosis of Endocrine Disorders" and Harvey Cushing "Pituitary Body and Hypothalamus," but for a working formula in the office I still prefer my diagnostic scheme. Dr. Engelbach's work is the most understandable and detailed of anything published, but even he does not give a concise, definite, clinical diagnosis.†

Pluriglandular cases present variations which have to be considered. Most advanced pituitary conditions are pluriglandular, at least involving pituitary and gonads or thyroid, sometimes all three. Usually it can be determined which is primary. We have pituitarothyroidism, thyropituitarism, pituitarogonadism and pituitarothyrogonadism. The place of the adrenal is much less accurately determined but this gland not infrequently enters the picture. The pituitary has been called the father of the glandular system. It is now known that the anterior lobe produces the growth hormone (eosinophilic cells) and two sex hormones (basophilic cells) and even if there are no more (as there probably are) these are enough to give it the place of first importance. The pituitary secretion is an important element not only biochemically in the general metabolism but also in its activity on the other glands. *Thus we have both the non-endocrine and the endocrine reactions to pituitary secretions and the results of treatment depend upon both of*

*Read before the Rhode Island Medical Society, March 2d, 1933.

†Since this paper was written "Tides of Life" by R. G. Hoskins, Ph.D., M.D., published by W. W. Norton & Co., Inc., N. Y., has appeared and is the best presentation available as to activity of the endocrine glands.

these reactions. If the other endocrine glands can not or do not respond to pituitary extract only the direct non-endocrine reactions are obtained, while if the other endocrine glands react we get also the results of their activity, both non-endocrine and endocrine, including their stimulation of pituitary activity in addition to the direct action of the pituitary. Thus the effect of medication depends not only upon the power of the extract but upon the ability of other glands to respond to the pituitary extract or hormones given. Permanent results from treatment come only when the activity of the pituitary itself is increased presumably by the stimulation from the other glands. This of course can not take place when the pituitary has been destroyed or is functionally dead.

This is probably the origin of the mis-statements so frequently made that pituitary extract is ineffective if given by mouth. If the pituitary gland has been destroyed by a tumor, in animals by experimental removal or in humans where we have near functional death, effect of treatment by mouth is practically ineffective and even the effect of hypodermic treatment with the concentrated extracts or isolated hormones is only temporary. No treatment is satisfactory which does not restore normal activity to the pituitary gland. In other words it is necessary to have a pituitary gland which can have its vitality restored in order to have successful results from any form of treatment. In mild cases this can be done very satisfactorily in treatment by mouth, in more severe cases results can be hastened by hypodermic treatments and in far advanced cases good results can be obtained in only a small percentage of cases but even here unexpected success is sometimes obtained. The attitude of eminent men that pituitary treatment by mouth is ineffective reminds me of the attitude of the eminent physicians of Providence, not many years ago, that bath tubs were a great menace to the health of the community and should be prohibited by law. Both show human fallability, strong conviction and weak reasoning.

My conviction that pituitary extract by mouth is effective is also strong. My reason is that if I take one grain of the entire gland I have a very uncomfortable headache, a grain the second day gives a more marked headache, distress and rumbling in the abdomen and insomnia and if the same amount is given the third day there is much intestinal disturbance with diarrhoea, irritability, complete insomnia with a very rapid and irregular heart, apparently auricular fibrillation. Three days are required for these symptoms to wear off. I have seen similar results with others who showed no signs or symptoms of being hypopituitary. How far these extreme reactions are the pharmacological effect of the hormones or to what extent other endocrine glands are showing their resentment at being prodded into undue activity I do not know but I do know that the extract was not destroyed in the stomach. The extract only contains the hormones which were in the gland when the animal was killed and this is probably very little compared to what the gland could secrete if nature made a demand for full production so the dosage by mouth is uncertain in strength and we have no means of knowing how much is needed in any individual case. Any dosage by mouth or hypodermic is tentative at the start, to be increased until effect is obtained.

There are few if any signs or symptoms resulting from disturbed functioning of the human body which may not come from more than one cause or be cured in more than one way.

Hypofunctioning of the pituitary is usually inherited but may have other causes. It may be overcome by anything which increases the vitality of the body as a whole. I have seen the same results in children from the treatment given at the Preventorium as from direct endocrine treatment.

Hypopituitarism may be secondary to inactivity of the thyroid or gonads and relieved by treatment directed to the thyroid or gonads, as even though the hypopituitarism be primary and the hypofunctioning of the thyroid or gonads secondary it may be that extra stimulation, as by increasing the activity of the thyroid or gonads or by giving their hormones, may give the needed assistance to the pituitary and restore functional harmony. This is frequently seen with the increase of gonadal activity at puberty. *Another occurrence showing the interdependence of the pituitary and thyroid is to see thyroid activity and size diminish on administering pituitary extract when there is hypopituitarism with hyperthyroidism.*

The pituitary affects the development of the whole body and so the signs vary according to the period of life in which the hypofunctioning became sufficiently marked to cause signs.

Cases are classified as infantile, juvenile, adolescent and adult. Perhaps this is as good a classification as can be made but there is a great difference between early and late adult life. This discrepancy

is shown by dividing them into those becoming manifest during the ascending and descending vital wave, that is before and after 35 to 40 years of age.

With infantile I have had so little experience that I will not attempt to give any diagnostic data. Engelbach says "Uncomplicated pituitarism of infancy has not yet appeared in medical literature. More than likely this is due to lack of its recognition rather than to its non-occurrence." "The apparent rarity of infantile hypophyseal disorder, therefore, would be attributable to a lack of diagnostic acumen rather than to infrequency." I have had the opportunity to observe one case (not a patient) a number of times and understand the death was ascribed to Status Thymolymphaticus.

Clinical Diagnosis

Study of the characteristics of many patients relieved by pituitary treatment has given the following as the most constant signs and symptoms. Signs may appear as the result of functional disturbances and the functions become normal but the signs remain. Any errors developing as a result of these conditions, however, are no more than the expected percentage of errors if both signs and symptoms are present. These signs are:

1st. Irregular fat deposits especially of girdle obesity type.

2nd. Dilated venous capillaries in the skin or general enlargement of veins under the skin.

3rd. Ecchymoses out of proportion to force applied or apparently occurring spontaneously.

4th. Thickening of subcutaneous tissues.

5th. Pigmentation about the eyes (gonads also involved).

6th. Characteristics of opposite sex.

7th. Chromatoses.

Irregular fatty deposits have long been recognized as indicating hypopituitarism but frequently girdle obesity only is mentioned. Girdle obesity is the most common manifestation but irregular fat elsewhere may be due to hypopituitarism. Especially characteristic is a pad or hump on the back of the neck and sometimes lower end of spine. Irregular masses of fat are found on the inside of the thigh, just above the knee, about the thigh, the buttocks, above the pelvis, across the abdomen low down and again in the epigastrium, below the shoulder blades and on the upper arm. But many cases are of the opposite type, tall and thin. Is it that they are substandard in some hormones with an excess of others or does the thyroid increase in activity as an effort on the part of nature to compensate as to general vitality for lack in the pituitary?

The pituitary stimulates the smooth muscle fibres and as a result in hypopituitarism we may get lack of tone in muscles of the blood vessels especially the veins and venous capillaries. My attention was first called to this by seeing such dilatations disappear in the skin of a young person under treatment. (B. M. & S. J., Vol. 191, No. 21, pp. 973-977, Nov. 20, 1924.) Dilated venous capillaries are usually most marked on the legs in women, below the clavicles and along the lower border of the ribs anteriorly in men and over the upper chest, back and front, in children. They may be quite sharply localized and intense or widespread and not intense. In children they may appear merely as a mottling of the skin. Striations in the skin are found, apparently, only in association with hypopituitarism. Such striations appear in the skin of men and young girls at times but are most marked in multiparas. From Cushing's Syndrome of Basophil Adenomas I learn that in marked adenomas extreme striae are found, at first purple and later becoming white. In some of these cases he also found cutaneous haemorrhages. Hyperactivity is frequently followed by hypoactivity.

Ecchymoses easily produced or spontaneous are explained in the same way, viz., lack of tone in the venous capillary walls.

Thickening of the subcutaneous tissues has been ascribed to hypothyroidism but whatever role the thyroid may play I have many times seen such thickening even when marked, disappear under pituitary or pituitary and gonad extracts, no thyroid being administered. This softening of the subcutaneous tissue is, when it occurs, an excellent sign that the individual's own glands are responding.

Pigmentation about the eyes often disappears under treatment but in marked cases the gonads are also involved.

Characteristics of the opposite sex explain themselves and are most often found in the breasts, pubic hair and general build.

Chromatoses have been seen to disappear under treatment with pituitary but my experience with these is not extensive.

The symptoms most commonly met are:

1st. Headaches.

2nd. Neuroses (with accompanying gonad involvement, emotionalism).

3rd. In children enuresis, talking or walking in sleep, also gritting teeth and restlessness.

4th. Vaso-motor disturbances.

5th. Lack of endurance or ability to concentrate.

6th. Anomalies of menstruation.

7th. Abnormal nocturnal emissions or sexuality.

8th. Pain, most common in head, chest, and abdomen but also in spine or limbs (usually of character of migraine).

These are the most common symptoms indicating pituitary hypofunctioning and when signs are also present the indication becomes a probability. The symptoms may be of any degree and are affected by abnormal functioning of other glands or by other disturbances. *The practice of medicine is an art, not a science*, and an artist can place the origin of the symptoms by their grouping, intensity and accompanying signs frequently when the scientist will say the trouble is mental. I have seen many cases, pronounced by first grade clinicians and neurologists, as having nothing the matter with them, radically changed for the better by pituitary extract. One of the commonest symptoms is headache, at the base of the skull posteriorly, also migraine. Neuroses are present in nearly all cases and are the cause of the patient desiring treatment in a large majority of cases. In marked disturbances the gonads are also involved and the symptoms include fear, crying, insomnia (although pure hypopituitarism usually causes marked sleepiness), mental depression, lack of normal response and irritability.

As to the anomalies of menstruation pure hypopituitarism most frequently causes profuse flow, primarily lack of sex hormones, secondarily lack of corpus luteum. With pluriglandular disturbances the pituitary may be involved in almost any functional menstrual irregularity.

The symptoms of pituitary functioning are largely through the action on the sympathetic nervous system and sometimes there is great similarity between hyper and hypo functioning and nowhere is this better illustrated than in sexuality excepting that frigidity is always a hypofunctioning while amenorrhoea can be produced by hypo or hyper pituitarism.

Pain is a frequent symptom of hypopituitarism and there is no part of the body in which this can not occur. The most common location is the head, either as migraine or at the base of the skull posteriorly. Substernal pain is not uncommon from this cause, nor is abdominal pain through the splanchnic nerve causing many needless abdominal operations especially as relates to gall bladder, appendix and ovaries. Hypopituitary pain can also simulate arthritis as shown by

CASE No. 8844

First seen on June 28, 1928, female 37 years old, teacher. Has been under treatment by several well-known orthopedic surgeons for arthritis of the spine without any relief. Now suffering intense pain and cannot sleep. Wearing a leather jacket and compelled to sleep on a board to keep spine straight. Examination: P. 80, T. 98.4, B.P. 125/90, B.M. —17%. Symptoms indicated a lack of pituitary and ovarian activity. She was given pituitary, ovarian and thyroid extracts. Seen September 21 and was having less pain. At Thanksgiving was so much better she stopped sleeping on the board and by Christmas left off the leather jacket. Excepting on a sudden twist or bending she has had no pain since but for some time had an ache on standing very long, as in a receiving line, though walking gave no trouble. She had creaking in the knees since October, 1927, and this disappeared soon after treatment was begun. (A not uncommon incident in treatment with pituitary extract.) Not seen by me from June 25, 1929, until October, 1932. She had been abroad for 14 months and had no gland extract excepting 200 tablets of ovarian substance grs. 5 and the same of anterior pituitary grs. 2½ which she took with her for emergency use. In May her menstruation stopped and mouth became sore. The anterior pituitary seemed to disturb the stomach and but little was taken. Ovarian substance restored menstruation and cured sore mouth. Has been having many nerve symptoms and some backache and knees are getting stiff again, also less endurance than when under treatment and so returned. Pituitary and ovarian substances again brought improvement.

A diagnosis of present need for treatment must include symptoms as well as signs. There is no symptom from hypopituitarism which can not come from some other cause and symptoms are of value in their grouping and associations. An endocrine diagnosis must exclude a non-endocrine cause as the probable agent but non-endocrine and endocrine agencies are frequently present together and correcting one helps correct the other.

There are now laboratory tests which are of value in studying pituitary functioning but they require facilities not within the reach of the general practitioner nor (excepting a few clinics) within the range of the purse of the average patient today. In the young X-ray of the bones is quite conclusive as to activity of the growth hormone. Until further data comes to hand, however, I consider the above as adequate for a working basis.

Hypopituitarism as Related to Medical Practice

The chief value of the diagnosis of hypopituitarism is its relation to internal medicine but there is none of the specialties which is not affected and it also enters into surgery and dentistry.

My observation indicates that the great mass of adolescents and young adults who break down during school and college years as well as those who do not develop properly or who can not fit into the regular scheme of life are hypoendocrines and most commonly the pituitary is the chief offender following which come the gonads and the thyroid. To see these youths, frequently extremely intelligent and sometimes ambitious, held back by lack of endurance or lack of concentration, gradually become normal and take their place as the equals of the normals and hold that place without further treatment is one of the greatest pleasures of the practice of medicine. Many of these youths, especially the mental misfits, also need gonadal treatment though as the gonads are dependent upon the pituitary for their development the pituitary medication alone often produces great changes. Sometimes the defects are corrected without treament, especially at puberty and at the "change of life" but more often these times the manifestations of the defect become more marked.

Hypopituitarism is one of the causes of soft teeth, of early decay of the teeth and of improper placement of teeth in the jaws. It is one of the causes of chronic inflammation of the nasal sinuses and it has marked effect on the muscles of the eyes, both the muscles of motion and accommodation. I presume we have all had patients tell us of going to an occulist in whom we have confidence but his glasses did not give satisfaction and another occulist said the glasses were not right, fitted some new ones which gave no better satisfaction and so the patient drifts around and has a frequent change in glasses. In at least some of these cases the fault is not the occulist: he fitted glasses to the eye of the day but the muscles of the eye were unstable and the eye did not stay the same. I have seen strabismus of short duration corrected by giving pituitary extract after other treatment had failed, and am apparently watching the straightening of the eyes of a boy of 12 years who has had strabismus since 2½ years old, as a part of extreme hypopituitarism.

The most common single complaint is headache, the division of medicine presenting the majority of patients is the neurological and headache is one of the frequent symptoms of "nervous" patients. Many come because of headache per se, most of whom are relieved by pituitary or pituitary and gonad extracts, and yet one of the common symptoms of over treatment is headache.

As to pelvic pain and disturbances of menstruation I know of them only as incidents in treatment for some other disturbance but what experience I have bears out the claim of the close relationship between the pituitary and the ovary and when obstetricians learn more of endocrinology there will be fewer miscarriages, less uremia and fewer abnormal children. To illustrate my meaning:

CASE No. 2384

Seen by me for some throat trouble in 1904 when her father was a patient of mine having high blood pressure and auricular fibrillation. Next seen as a patient February 2, 1933, because of heart attacks she thought to be such as her father used to have. Female, married, 48 years of age, 1 child, 8 miscarriages. She had four of the best obstetricians obtainable. Examination: P. 130± very irregular, B.P. 170/110± hard to determine. Weight 191¾. Electrocardiograms shows auricular fibrillation and marked variation in R to R intervals. She is and always has been a marked hypopituitary and now it is possible to treat such cases while they are young so as to avoid these later calamities.

Now to take up that with which I am more familiar, diseases of the chest: asthma started my study of endocrinology, tuberculosis aroused my interest especially in the pituitary and the relation of pituitary and the heart came gradually and as a surprise.

Asthma

I presented a paper on asthma before you which was published in the Rhode Island Medical Journal February, 1922, and I can stand back of what I then said, which is more than can be said of many papers years later. Some cases of asthma get well spontaneously (usually at puberty or "change of life"), many have been cured by vaccines and many in other ways. Asthma is due to something abnormal in the functions of the body which causes anaphylaxis. Producing immunity to a specific substance which brings attacks of asthma may stop the asthma, at least for a time, but does not remove the underlying cause of the anaphylaxis. With patients who respond to the diagnosis of endocrine disturbance the susceptibilities to the various excitants of asthma whether pollens, foods, weather

changes, mental disturbances or odors are seen to gradually disappear in many cases and in all juveniles so far as my experience goes. In older people and after secondary changes have taken place cure is much more prolonged and not so certain. As an illustration of possibilities:

CASE No. 7469

First examined June 6, 1924, when he complained of having a head cold all winter and of stuffing up on lying down. The interview was so satisfactory that he did not come to see me again until September 2, 1931. In the meantime he had developed regular asthma, had been under various physicians and more varied treatments. In 1927 polypi were removed and antrums drained: eighteen months later this was repeated and part of ethnoid removed with relief for ten weeks. In 1929 was sent to Arizona, no relief, and on his return in 1930 was given 300 skin tests, all negative: polypi and tonsils removed with relief for about eight weeks and again Arizona without relief. Has taken much adrenalin, as high as MXII ..... five times in a night. States that he has not had a night's sleep in five years and is dependent on adrenalin and a proprietary remedy for existence. As always in such cases there were very many nerve symptoms. One nerve disturbance was very troublesome, an erection of penis all night, and though this may come from hyperpituitarism it was cured by pituitary extract before any effect was produced on the asthma. He is tall and spare, indicating a disproportion between the growth and sex hormones. It was not very long before he was able to go without adrenalin excepting occasionally and during the recent fall and winter he recovered to such an extent that he went to work and is now working steadily, his chief complaint being that there is considerable nasal obstruction, sometimes one side, then the other. His treatment was pituitary to which soon orchic and later suprarenal extracts were added—all by mouth.

Tuberculosis

As I resigned my tuberculosis clinics when I started this study I have not sufficient data to state what proportion of tuberculosis patients respond to this diagnosis. Our ideas of tuberculosis are not yet stabilized. Dr. Pinckney has shown in our own schools that tuberculous infection is no more common among the poorly than the well nourished. It has been believed for many years that there is some element, though its identity is unknown, which, if known, could explain why under the same exposure and same living conditions one person contracts tuberculosis and another does not. Further, many have believed similarly as to why after tuberculosis is contracted some get well, perhaps even without knowing they are infected, and others will make no improvement with all that science and money can produce. Of recent years most cases go to some sanatorium but not all and so I have had some chance to watch patients who also show hypopituitarism and have seen them improve faster and with more endurance than formerly. The only cases from which I feel that any conclusion can be drawn are those who had previously been under other competent care. As one such I will report:

CASE No. 9672

Patient first examined October 21, 1931, female, 21 years old, in Asheville since November, 1929—pneumothorax-phrenectomy, temperature usually normal but pulse 100 to 114 while in Asheville and sometimes had palpitation before going there. There was much trouble in left lung which had been compressed and marked infiltration of right lung with cavity at the apex as shown by X-ray. There had been no improvement. She responded to diagnosis for hypopituitaro-gonadism. She has been under treatment with pituitary and ovarion extracts. The pulse came down to the 80's within two months, and today she is getting about some, is feeling good and her appearance is quite different from when she came home. X-ray shows healing of foci in right lung—left chest has thickened pleura which obscures lung view but breath sounds have much improved. After two years of the best care possible and no improvement she returned to the place where she contracted her tuberculosis and has markedly improved. The only new elements are pituitary and ovarian extracts by mouth.

This patient also has had acne badly for years. Light treatment in Asheville gave but temporary benefit. Under gland treatment acne disappeared and no return after a number of months with little gland treatment.

Patients suspected of having tuberculosis but in whom no disease can be demonstrated as well as patients having frequent attacks of bronchitis frequently respond to the diagnosis of hypopituitarism and are relieved by proper treatment. I have a list of over 150 patients who came either because they thought or had been told they had tuberculosis or because of frequent bronchial trouble or taking colds easily who according to my diagnosis have hypopituitarism sometimes alone and sometimes combined with other gland deficiencies. Many of these patients have been cured by pituitary extract by mouth. The type of many of these patients is the same as of many of the tuberculous and correspond to what used to be called pretubercular and I suggest that you consider carefully to what extent the asthenia and lack of resistance present in cases of this class of functional disturbances are due to hypoendocrinism. Also to what extent this condition precedes and is responsible for some infections as tuberculosis.

The Heart

In the Transactions of the American Climatological and Clinical Association for 1930 I have a paper, "The Relation of Functional Heart Disturbances to the Pituitary Gland." In this paper attention is called to the relief of cases having a clear diagnosis of angina pectoris without any demonstrable lesion of the coronary arteries but with signs of pituitary hypofunctioning relieved by endocrine treatment. Like the thyroid the pituitary can cause an asthenic condition of the heart leading to heart failure and also I have seen arythmias much improved or cured by pituitary treatment, the ultimate success dependent upon the age of the patient and the degree of secondary changes. As Engelbach says of endocrinopathies "The duration of life is shortened by the reduced immunity to non-endocrine disease and the effects upon non-endocrine systems, in particular the cardiovascular-renal organs. Consequently this is one of the causes of presenility and early death."

The Limitations of Treatment of Hypopituitarism

When I began this work I had neither knowledge nor theories to work upon. I knew of no reliable literature of clinical nature and so as to dosage, duration of treatment and the probable prognosis I had to learn by experience and today still have much to learn, though there have been published during the past year three valuable works as earlier mentioned.

Experience has shown that mild cases in the young need merely a start in the right direction and then they take care of themselves. In marked deterioration, especially in advanced years, but little can be accomplished excepting the pharmacological effect of the glands and sometimes this can be appreciably obtained only by intramuscular injections of the hormones and this effect is only temporary.

Between these two classes are all stages and one must learn by personal experience and the reactive power of each case must be studied before judgment can be given. After studying many cases a concept of hypopituitarism can be formed, just as with many diseases, so that a diagnosis can be made on superficial observation but every case should be carefully examined to exclude organic disease or so as to combine the treatment of the organic disease and the hypopituitarism. *Pituitary extract does not, with few exceptions, replace any drugs excepting useless ones but it does frequently, where indicated by diagnostic data, immensely assist drugs in accomplishing their function.* This has frequently occurred in failing cardiac functions where digitalis alone would not work. Digitalis and pituitary extracts have worked finely in restoring to the heart increased strength. The same holds true of many other conditions. To illustrate my meaning as to useless drugs:

CASE No. 8015

Patient first examined January 18, 1926, female, single, 53 years old. Had hay fever and asthma badly at 12 years for two or three seasons and again at about 20 years for three or four years. Now has asthma some when near water and in damp weather. Oldest brother has asthma badly when at beach. Has had many nerve symptoms, tingling in hands, weight on head, light head as if sailing off into air, hot flashes constantly, insomnia because of a feeling of pressure in temples, some deafness, attacks of urticaria. Had attacks of acute indigestion at time of menopause, then got better but last spring these returned. Attacks consist of much gas, severe pain in epigastrium and distress about the heart: hair began to turn gray at about 30 years of age, ringing in ears, fears to go where there are many people. X-ray in June, 1925, was negative excepting gall bladder did not fill well. "Has been taking a cherry-colored liquid, a tablet for gall bladder, a small white tablet for acidity, a tablet directly after meals which had an acid taste, a yellow tablet before meals and at bed time and a tablet two hours after meals." She responded to numerous signs and symptoms as given for hypopituitarism. Was given entire gland pituitary and in a year practically all abnormal symptoms had disappeared and she became intolerant to either entire gland or anterior lobe pituitary. At the end of another year tried pituitary extract again but she could not take it. Five more years have gone and I have not seen her but by telephone May 18, 1932, she told me that she is well excepting for some hyperacidity of stomach and that the only medicine she takes is some soda and a laxative.

Secondary organic changes can rarely be overcome but yet even here much depends upon the intenseness of the changes and the reserve for the return to normal of the endocrine glands. Chronic infiltrations may disappear and nerve activities which were apparently permanently abnormal have become normal. One obtains marked benefit in patients who are suffering severely physically or mentally or both but in whom the best clinicians can discover no abnormality and who have in many cases been told that there is nothing the matter with them, or even when the clinician has recognized that there is something the matter he acknowledges he is helpless to give relief. Such an

instance is the following patient who had been a nurse in China since 1921 and returned because of illness. She was referred to the national medical director of the missionary society and from his report I quote: "She was referred to St. Luke's Hospital for diagnosis concerning the stools as indicating sprue and also concerning gastric ulcer. She entered the hospital June 25, remaining until July 25: was then home for seven weeks under careful diet, reporting again to St. Luke's Hospital, Sept. 10-15. She was under the care of Dr. Frederick H. Wilke.

"Hospital findings: Complained of indigestion, hunger, malaise, epigastric pain, eructations for 10 months. These symptoms followed influenza in Feb. 1927. Nov. 1927, she noticed that her stools were white and contained undigested food. There was no jaundice. Feb. 1928, she had 'flu' again, followed by neuritis with white stools, malaise, epigastric pain, hunger, occasional sore mouth. Best weight, 1927, 138 lbs. Entrance weight 110½; discharge weight 113¼. During her hospital period temperature was normal except on one occasion when rectal temperature was 100.

"Recommendations:

"1. This missionary is in a condition of depleted health due to intestinal trouble that will require protracted, competent and thorough treatment. She has already been carefully advised as to diet and finds that when she adheres to it she avoids unpleasant symptoms. It is earnestly recommended that she follow strictly the instructions given her and report to this office or to someone competent to give her judgment on the sprue condition not less frequently than once in six weeks. She is now on a high purin, low carbohydrate diet. From time to time her progress, watching her weight and her bowel symptoms must be noted and the regime modified as her case requires.

"2. Her lungs are questioned, and certainly the type of treatment usually directed toward chronic pulmonary infections will not be amiss in her case. We heartily approve the suggestion that she go to the Lakeside Preventorium for general upbuilding and careful treatment directed toward pulmonary improvement.

"3. We doubt the wisdom of giving any judgment on the question of return to the foreign field at this time. It can not be recommended now and for further recommendations we must await the outcome of the present line of treatment."

CASE No. 8969

First examined November 14, 1928, female, 38 years old, single, nurse. Suffered occasional attacks of indigestion in early years. Tonsillectomy in 1918. Appendectomy in 1919. In 1921 was suspected of having inflammation of gall bladder but X-ray examination was negative. Teeth began to decay about 1912 and are now nearly all out. She had pains about chest (reported as pleurisy) over a three-month period in 1921. Went to China as a missionary nurse in 1921. Had two attacks of neuritis in summer of 1927 and in December, 1927, had a third and more prolonged attack accompanied by a gastro-intestinal upset. In the summer of 1927 had a mass of flat brown patches appear about the waist, lasting several months, gradually disappearing. Influenza in February, 1927. Again in February, 1928. This second attack was followed by neuritis involving the left side of neck, left arm, lower back and both thighs. Severe enough to keep her from work at times. In the summer of 1927 developed a "terrible appetite." She had to have food between meals. If she did not get food she had pain in the back and much distress in abdomen followed by much distension and indigestion for 2 or 3 days. Any starchy food causes much distress. In the spring of 1928 had diarrhoea for 10 days with much blood and pus in stools. Had to have food every half hour. Microscopical examination of stools was negative. She is now 37 lbs. underweight, markedly nervous. She has had repeated attacks of palpitation and breathlessness on exertion for 2 years. Her basal metabolism has been tested and found —6%. Examination P. 88, T. 98, B.P. 120/80. Long bones are markedly long and she appears weak or exhausted. X-ray of lungs negative. Capillaries on surface of body are markedly dilated, and she states that her flesh ecchymoses very easily, spots appearing without known violence. There are slight irregular fatty deposits. She first menstruated at 17 years and the flow is scant. Breasts are sensitive at time of menstruation. On Nov. 14, 1928, she was given anterior lobe pituitary and ovarion substance. On Dec. 14 she reported that she was feeling finely and she went into a general hospital on regular duty as a nurse and thus continued, reporting on June 24th that she was feeling well and "finding herself running up stairs, the first time in years." She stopped taking the gland substances in the summer and Sept. 9th, 1929, reported having had some headaches, also an attack of indigestion and a diarrhoea for 2 days. She has taken the same gland substances since and Jan. 8, 1930, reported, "It is marvelous the amount of work I can accomplish." She has taken no other medicine. January 11, 1933, she writes, "I know that you will rejoice when I tell you I feel so absolutely well that I believe you can discharge me cured" . . . "I am weighing 150 lbs.—no more intestinal upsets—it seems perfectly miraculous to me and I am very happy and exceedingly gratified." Experience has shown, however, that if she comes under any special strain she will need further treatment.

Another case showing both the benefit and limitations of treatment is briefly (a full narration would be a paper by itself) as follows:

CASE No. 8832

First examined June 20, 1928, female, age 35, teacher, has had intense headaches for years, formerly about once a week but recently every day. She awakens with a headache in the morning and has to have a cup of coffee before arising and about 12 cups of coffee to keep at work through the day. When 15 years of age weighed 181 lbs. Has been under treatment with thyroid extract with no special effect on various symptoms. She responded markedly to my signs and symptoms for lack of pituitary and ovarion activity. On treatment with pituitary and ovarion extracts by mouth she improved much but there was still left much to be desired. In February, 1931, intra-muscular medication was started. She has received as high as two ampoules of anterior pituitary, one of surgical pituitrin and one of ovarion substance at a time and the only unfavorable symptom was that with a continuance of surgical pituitrin she became very irritable and did not want to see anyone. She is now taking one ampoule of antuitrin and one pituitary liquid obstetrical. In February, 1933, she reports as being nearly back to where she was when she began to break down about 8 years ago and her whole appearance indicates the same. She is no longer dependent upon coffee in order to do her work. She has to have intramuscular treatments or there is a let-down in her endurance and productive capacity both mentally and physically. Yet without intramuscular treatment (and she has gone two months without it at a stretch) she does not break down as formerly, though she notices a difference. One thing worth calling to your attention is that while under treatment she has had two attacks of urticaria, the first was the most severe I have ever seen, and treatment was stopped as being a possible causative agent but the trouble increased. Antuitrin stopped it and when the second attack came antuitrin stopped that at once. Before June, 1928, she had nearly stopped menstruating and a prominent Boston physician told her that she could not possibly menstruate more than six months and advised X-ray treatment of the ovaries to stop all functioning as a possible remedy for her headaches. Today she is menstruating normally every 28 days. A surgeon in Hartford thought he could cure her headaches by an operation removing the appendix. The appendix was found normal. During 1925 several excellent physicians said she had heart disease and could never be normal but two Boston men said the heart abnormality was of nerve origin. Heart now apparently normal. But with all this improvement she has gained in weight. The skin has softened and the flesh is more flexible but even with much pituitary by mouth and intramuscularly weighs more than five years ago.

Another case of a similar type is slowly but steadily gaining weight though headaches are relieved and endurance much increased. Whether, as I have seen in treatment solely by mouth, a time will come when the metabolism and weight will become normal I do not know and do not encourage this hope. I take the ground in all such cases that the general improvement is the primary thing. There are cases of marked obesity which respond by loss of flesh to pituitary treatment, which usually has to be continued over a long time. Another class needs thyroid also and then there are those which do not respond to either pituitary or thyroid, singly or combined. In these cases a study of Dr. Cushing's recent work indicates that hypothalmus and pituitary are both involved. But it is not always thus:

CASE No. 9599

First seen April 14, 1931, male, 42 years old. Recently his business became so small that he closed out and wants a position but cannot get one because he is so fat. To get rid of the excess adipose tissue was the cause of his coming. Examination: Weight 258½, P. 84, T. 98, B.P. 165/130, B.M. —3%. Mother and sister asthmatics and patient had had hay fever in August for three years. Very sleepy, has gone to sleep while playing cards. Subcutaneous tissues very thick and fat deposited irregularly but some everywhere. Quite a pad on the back of the neck and rolls across abdomen. Under treatment, wholly by mouth, consisting of endocrine extracts only, and chiefly pituitary, on October 27, 1932, his weight was 206½ and B.P. 135-75. He is of large frame and thought he had reduced enough. Has not returned since.

Frequently the form will change very much before a pound is lost. I have seen a man's abdominal measure diminish five inches before any change in weight, and I am now treating a woman whose bust measurement has dropped from 48 to 44 inches but no loss in weight.

In conclusion: I have endeavored to present the result of my studies as to hypopituitarism from a purely clinical standpoint. Time forbids consideration of pluriglandular syndromes but most cases which are of long duration are pluriglandular.

The diagnosis presented is purely from clinical study, not from laboratory experimentation, and is presented to the internist until further clinical and laboratory work can present something better and with recent progress this will soon be done.

Treatment with gland extracts does not replace but re-enforces drug treatment and is advised only when indicated according to the diagnosis of hypopituitarism.

THE PATHOLOGY OF PEPTIC ULCERS*

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Ulcers were first described in 1793 but at that time no differentiation was made between carcinomatous ulcer and simple gastric ulcer. The first

*Read as a part of a Symposium on Gastric Ulcer at Rhode Island Hospital Clinical-Pathologic Conference April 12, 1932.

accurate description of ulcer was made in 1829 and since that time no real advancement has been made as to etiology but we have now easier and more definite means of diagnosis and treatment.

In judging the incidence of ulcers, probably the most accurate way is through the postmortem findings, although there is some chance of error in that other lesions of the stomach and duodenum may leave scars but I believe that more healed ulcers are missed than scars from other causes counted.

In a series of 100,000 autopsies gathered from the continent of Europe, ulcers were found in 4.5 to 5% of the cases. In a like number of cases in our own country the percentage varied from 1.3 to 4.4. Somewhere between these two figures lies the average incidence of ulcer. The ulcer age is usually considered to be that from 35 to 45 in the male and slightly earlier in the female. However, more ulcers are found from 45 to 60 than from 20 to 35.

There are many theories as to the etiology of ulcer but none of these have definitely been proven. In this discussion, I will speak of five of the more generally accepted theories.

1. Inflammatory: This is based on the finding that in most cases of ulcer there is an associated gastritis and duodenitis.

2. Neurogenic Theory: Ulcers have been produced experimentally in animals by the destruction of the nerve supply to various portions of the stomach and also on the fact that in the vicinity of ulcers there is quite often an associated neuritis and perineuritis.

3. Circulatory: This theory is probably more generally accepted than any of the others for all that is necessary for the formation of an ulcer is a disturbed circulation to parts of the G. I. tract which are in contact with normal gastric juice. There is also found in the vicinity of ulcers an endarteritis and thrombosis of small blood vessels.

4. Bacterial: Rosennow is the most enthusiastic supporter of this theory. He has isolated a strain of streptococcus which, when injected into animals, has produced ulcers in a high percentage of cases. Other observers have not been able to reproduce these results in such a high percentage of cases.

5. Corrosive: Although it may not be the etiological agent, hot and cold food, highly seasoned food, irritating drinks and over distention surely play their part in the etiology.

So as to etiology, ulcers are probably caused from a combination of factors and these above theories play a bigger part in the chronicity of an ulcer rather than etiology. The ulcer considered is the chronic ulcer and pathologically it must invade deeper than the mucosa and submucosa to be called chronic.

Pathology: Seventy-five per cent of all ulcers are single. Of the multiple, two or three are more common but as many as sixteen to twenty have been found.

The most common location is near the pyloric valve. The ulcer is usually round but may be irregular due to coalescence of two ulcers or to scarring causing a constriction of one portion. The size of the ulcers varies from 1 m.m. to many inches in diameter. As the ulcer burrows its way into the wall it takes a cone shape, the base being at the mucosal side.

The base of the ulcer may be covered with a necrotic membrane or by granulation tissue. The edges may be slightly indurated. Around the ulcer there is an infiltration of lymphocytes and usually a few eosinophiles. There may be an associated endarteritis and neuritis with small thrombi in the blood vessels. There is usually a varying amount of fibrosis around the ulcer.

Complications and Sequellae: Scar formation—The importance of this depends on the location and due to the fact that most ulcers are located near the pylorus, constriction and obstruction at this place is the most frequent and feared complication of scarring. Other deformities of stomach occur such as the hour-glass stomach.

Perforation is usually a gradual process and the final perforation is usually a leaking of adhesions previously formed. Dean Lewis estimates that twenty-eight per cent of ulcer cases perforate, while Welch says that not over 6.5% of his cases have perforated.

In the last 4,000 autopsies at Johns Hopkins Hospital, seven per cent of the open ulcers had perforated. The cause of death by perforation is estimated to be between six and eight per cent.

Hemorrhage—Nearly every ulcer shows some oozing but gross hemorrhage occurs in about 8.5% of all cases and is the cause of death in 29.7% of the fatal cases. The hemorrhage is due to erosion of the larger blood vessels, either in stomach wall or surrounding viscera.

THE RHODE ISLAND MEDICAL JOURNAL

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EDITORIALS

DENTISTRY AND MEDICINE

Of all the specialties in the field of medical practice, dentistry is the only one in which the practitioners need not be fully qualified doctors of medicine. Otologists, laryngologists, psychiatrists, dermatologists, all have had the general medical training which gives them a sufficiently broad point of view to see beyond the narrow limits of their own specialties and envisage the patient as a whole. Modern dentistry, with its search for focal infection in the jaws and its constant opportunity for a survey of all the oral mucous surfaces, stands in a close relationship to general medicine. General disease may often be first suspected by the alert dental specialist. Such a variety of conditions as the cyanosis of cardiac or pulmonary disease, tuberculosis, syphilis or tumor of the tongue or elsewhere in the mouth, lead or mercurial poisoning, pemphigus, scurvy, pellagra, pernicious anaemia, purpura and acute leukaemia, and many others may show their earliest or most striking manifestations intra-orally. In recognition of these conditions or at least in sensing the general implications of the local lesions the practitioner of dentistry can render a real service to his patient.

It is then time to recognize that the practice of dentistry is a branch of medicine and to constantly encourage a closer co-operation between dentists and physicians both in the matter of broad preliminary training and in the solving of clinical problems which have both a dental and medical aspect and which are of such frequent occurrence in actual practice.

LAY FALLACY

Patients frequently preface their history to the doctor by saying "I've too much acid in my system." Although their comprehension of the subject is extremely vague, the laity seem to take a certain amount of pleasure in such phrases. The vague understanding is the dangerous part of this new fallacy. Quacks are already seizing upon the ignorance of the public to make a good livelihood out of it, and they have only started.

Within the past few years a great deal of work has been done in the analysis of foods. The acid and base reaction of foods after ingestion is one of the most recent studies and is now available. Every physician can find out easily and quickly just what reaction may be expected from a given food. If the members of the medical profession will only take the trouble to inform themselves correctly they can remove the misunderstanding of the term by the public in the simplest language—the public will be protected against the unscrupulous and be saved from a disease that is threatening the pedestal of high blood pressure as a revenue producer.

SHADES OF DOCTOR RICHARD CABOT

We are recently in receipt of a communication which exposes an angle in up-lift agencies somewhat unexpected and at such variance with humanitarian impulse that we strongly question its philosophy. The plan of the indicated social worker loses point and if carried out would tend to break morale rather than fortify it. We should like to think that in a moment of vexation she felt that her prerogatives were being ignored or forestalled, and if not that, we are constrained to believe that there is something in the lines of Kipling referring to "the female of the species."

Every physician comes in contact with these problems of human frailties and emotional weaknesses, always pathetic, often pitiful; but who profits by exposing these indiscretions as outlined by the social workers which if followed must result in one of two conditions: either the "guilty" one becomes so lost in shame that never again may she hold up her head among decent associates or she sinks to still lower levels in degradations; in either event she becomes a social pariah.

Why not therefore hold our peace and endeavor to direct future deportment rather than to publicly condemn delinquencies that are past. The communication follows:

"Recently the writer delivered an unfortunate unmarried mother of a child, in an institution which prides itself on the care of such cases. Needless to add, the delivery was an unremunerative act of charity, although the institution collected for "Confinement Costs." Shortly thereafter there occurred an exceptionally desirable opportunity for the adoption of the "out of luck" girl baby. The prospective foster parents possessed all of the attributes necessary for splendid parentage and it seemed an ideal situation for solving the problems of the several individuals involved, and the true mother was delighted at the prospect of providing her daughter with a good home, and an honorable name.

When the whole matter was close to a satisfactory agreement, the paid "Social Worker" of the institution said it just couldn't be done because it was contrary to the "policy" of the institution, and that according to her plans the baby should be boarded in a home for six months at a cost of $4 per week to the mother (who had no resources whatever and no prospects of a job) with the hope that the mother would finally take the child home (having seen the error of her ways) and bear the onus of illegitimacy for life with a certain struggle to provide bare necessities for a baby condemned to certain unhappiness.

Because the Doctor could not see the logic of such an alternative, the mother was berated and made as unhappy as possible on account of the Doctor's unwarranted interference *with his own case.*

How far must the physician, who after all knows his patients better than anyone else, put up with the tactless, senseless and wholly unintelligent "disposition of cases" by "Social Workers" who are too inflexible to modify "policies" to fit into individual circumstances?

Is the Social Worker to be judge, jury, jailer and executioner for life of the girl who through ignorance has committed the "unpardonable sin"?

When Doctor Cabot in his foresight and unusual wisdom founded "Social Service" it was for just such cases; to solve in a humane, sane, and sensible way the intimate human problems of the unfortunate.

One sometimes wonders if that famous word "maladjustment" which the Social Worker so glibly uses, could not be shaped like a boomerang, and return whence it came. The "Milk of Human Kindness" and the Golden Rule have not been improved by institutional inflexible policies."

REVIEWING BILIARY SURGERY

By Robert H. Whitmarsh, M.D.

154 Angell Street, Providence, R. I.

Some three hundred years before Columbus discovered America, a sailor discovered a new way to tie a knot in a piece of rope. Since then no new knot has been invented. I have selected a topic for discussion tonight, that many men may look upon as a finished subject. How can anyone tie any new knots in that old piece of rope—the biliary tract? This paper is not going to pretend to any surgical inventiveness, nor diagnostic originality, but rather to review some phases of the subject and some particular experiences. It also aims to keep the mind open to advances that either have been made or will be made in the future.

Concerning pathology, it is always necessary to have in mind a background of the normal anatomy and physiology. Three factors are of great importance in understanding the departures from the normal tract. An understanding of these three factors either alone or in varying combinations, with each other, may simplify the pathology of this region. I refer to

1. Disordered Metabolism.[1]
2. Infection.
3. Biliary Blockade.

Apply these three factors alone or in combination to any designated portion of the tract and a fairly accurate picture of the resulting pathology will present itself. Cholesterol is the chief offender in disordered metabolism, and is the basis for most of the stone formation. Probably pregnancy, especially in fat women, has the most to do with disturbing cholesterol metabolism. Women have had more leisure, and ill spent leisure with dietary indiscretion may well be an added factor in gallstone formation. As to infection, we are prone to attribute this as originating either through the portal stream or through retrograde lymphatic drainage. Clinically is seen concurrent infection in appendix or intestine. Some investigators attribute a selective affinity for the gall bladder and believe all infection is of hematogenous origin.[2] "The third factor is strictly a mechanical one, and is due either to the action of stones in the tract or to the inflammatory results of infection."

As to diagnosis: The value of careful history and physical examination is paramount. Graham[3] in 1924 marked a great advance in publishing his first paper on the use of a halogen radical with phenolpthalein. The present universal use of this method in all X-ray laboratories is the greatest testimonial as to its efficiency. Intravenous methods exceeds the oral in efficiency by less than 10% diagnoses confirmed. The internist has made his contribution to diagnosis in the form of drainage analysis. The collaboration of internist, pathologist and surgeon has of late gone far in determining operative risks and in establishing final diagnoses.

Treatment: Pathology in the biliary tract is primarily a field for surgery except for the ordinary catarrhal jaundice. Probably cholecystectomy ranks next to appendectomy in frequency of abdominal operations. And not without reason, for the results are highly gratifying. The internist has no such valid claim to this field as he seems to have of late to peptic and duodenal ulcer. A chronic inflammation of gall bladder with stones is a case for surgery, provided, of course, that that individual as a whole is in good condition for surgery. The great lesson to be learned from analyzing the results of biliary surgery in the large clinics is the remarkable percentage of good results when pathology is limited to gall bladder and cystic duct, in contrast to the results when the pathology has spread to the rest of the tract with possible damage to liver or pancreas.

Surgical decisions in acute cholecystitis are, in my opinion, difficult. After the diagnosis has been made, the question arises whether to interfere surgically or not. I do not feel the same necessity for prompt operation here as in the case of acute appendicitis. Some hours or days, as the case may be,

can be used for observing progress. Increasing signs of severity of illness associated with failure of localizing symptoms, call for interference. This is the type of case that brings up the old moot question of cholecystectomy versus cholecystostomy. An acutely inflamed gall bladder, walled off with fresh adhesions and swelling and edema of the gastro hepatic omentum, in my opinion, calls for conservative treatment, namely, cholecystostomy. It would be well to inform the patient or family of the possible necessity of a drainage operation to be followed at a later date by the removal of the pathological gall bladder. However, many acute processes do tend to localize and remain localized without serious adhesions and cholecystectomy can be performed. Usually this type of case lends itself to the so-called English method, securing a line of cleavage at the liver border and peeling the bladder away from the liver. Proper identification of structures is vitally important. Improperly placed clamps may lead to injury to common duct or common hepatic duct. Wild jabbing after a spurting cystic artery may also lead to dire consequences to the main line. So I repeat, that if any doubt exists as to the ability to safely remove the gall bladder, the operation of choice should be cholecystostomy. In surgery of the chronic cases, drainage of the gall bladder has few advocates except in patients of great risk or where unusual difficulties are encountered in the neighborhood of the gastro hepatic omentum.

While on the subject of anatomical orientation in this field, it is well to remember the prevalence of anomalies. Eisendrath has well described these. Ernst Rugge[4] reports that 45% of his dissections on the cadaver showed the cystic duct took a spiral course and entered the common duct on the left side and in 20% the cystic duct ran an abnormally long course parallel to hepatic duct before junction. Bear in mind the possibility of accessory bile ducts. Personally, I have not encountered or recognized any such high percentage of anomalies, but I have noted one case of extremely long cystic duct and one case of intrahepatic gall bladder.

Chute[5] of the Lahey Clinic has given some good points in relation to cholecystectomy versus cholecystostomy in the older patients especially where stones are in common duct associated with more or less jaundice. These cases are liable to liver shock or hemorrhage or kidney failure or pulmonary complications if too much surgery is attempted. They believe that sedimentation time is of more importance than bleeding time or coagulation time. Their cases for several days before operation are given three liters of saline plus 75 to 100 grams glucose daily. The aim is to fortify glycogenic function of the liver, to liberate depressing toxins from liver, and to stimulate kidney function. Then their poor risk patient is given spinal anaesthesia and operated. The important thing is to remove obstruction to common duct and drain with T tube. If conditions warrant they open the gall bladder and remove stones and drain there also. Even if it seems technically easy, they condemn cholecystectomy. With a rubber tube in gall bladder, cigarette drain to the pouch and T tube in common duct they are quickly through the operation and their reports in this poor risk type are very satisfactory. This is their meaning of graded surgery.

I have recently been thinking about the type of incision to be used in biliary surgery due to several cases of subsequent herniation that have come to my attention. For several years I used a transverse incision and to my knowledge no hernia ensued. This incision gives excellent exposure to liver, gall bladder and ducts and to stomach and pylorus and to duodenum, but its disadvantage was the difficulty in removing the appendix. I believe that the majority of cholecystectomies need appendectomy also and the last thirty cases I have used either a hockey stick or right paramedian incision. Two of these cases had severe hernias result. One was a man that developed a complicating bronchitis; another was a woman. The latter had been operated many years before for umbilical hernia and had a transverse incision of the Mayo type. This transverse incision happened to be too low for approach to gall bladder and I used a right rectus incision at right angles to the former. I believe that nerve inanition played a role in this case. Moynihan advocates the right paramedian incision with retraction of the right rectus to the outside. There is frequently great difficulty in approximating the vertical incision, in contrast to the ease with which a tranverse incision falls together. One important point to remember is the presence of the posterior fascia above the semi-lunar fold of Douglas. It is not uncommon for this to slip away on one side or the other when trying to repair fascia and peritoneum together. Intra-abdominal pressure may well select a weak point in the posterior layer to originate the hernia. The incident of hernia even in recent years has ranged from 5 to 15% in various hospitals. One conclusion I have come to is to

prolong the patient's hospital stay to at least three weeks and practically all of this in bed. Also, the majority of patients need surgical belts for support. Watchfulness in the pre-operative care especially of respiratory tract and heart are very important as is the skill of the anaesthetist.

Another debatable question in biliary surgery is that of drainage. I am not referring so much to the question of drainage of the ducts either by means of catheter or T tube as to that of draining the abdominal cavity itself. My earlier training had been to always drain. I find now that 17 of the last 30 cholecystectomies have been closed without drainage. I have packed gauze loosely against the repaired liver bed and stump and after appendectomy, have removed the gauze to note the extent of soiling with either bile or blood. If satisfied that hemostasis is good and there are no signs of biliary seepage I have proceeded to close without drainage.

To date there have been no mishaps in these cases without drains. But I realize serious complications such as peritonitis, sub-hepatic or subphrenic abscess might ensue if no drainage is present. This is one of those points in technique where the pendulum swings back and forth. Statistics of failures are hard to obtain, but we know occasionally a case develops trouble because there was no drainage. Capillary oozing and biliary seepage tend to gravitate to Morrison's pouch and this is where a drain should be placed. Drains to a cystic stump may set up uncomfortable or distressing reflex symptoms such as vomiting. Also a cigarette drain to the cystic stump may cause such an inflammatory reaction as to be a possible cause of narrowing of the lumen of the duct through cicatricial contracture.

Gall bladder surgery involves the old topic of peritoneal adhesions. Human beings vary tremendously in their defensive peritoneal mechanisms. One group has an excellent reaction to stimulation, repair and resolution. Another group has an average ability and a small unfortunate group has a poor reaction. People of the latter class are the bane of abdominal surgery. All are acquainted with the ill effects that abdominal adhesions can cause, and some of these cases that are operated and reoperated are a serious problem. Many substances have been used in an effort to prevent the reformation of adhesions and most of these substances are based on the theory of lubrication. For several years I used calendula serate warmed to a liquid state and covered all raw surfaces with it. The theory of Lilly's Amfetin appealed to me. Amfetin is an isotonic saline solution of the active hormone of bovine amniotic fluid. It is used as a stimulant for a more normal peritoneal defense and repair action. Five years of animal experimentation were given to this work, using 2500 guinea pigs and 250 dogs. From the animal work conclusions were drawn that amniotic concentrate does increase peritoneal hyperemia and exudate which contains serum, fibrin and leucocytes in large numbers.[6] "After 96 hours the reaction has passed through the maximum and the exudate becomes a fibrin or mesh work of fibrin, in which repair of the traumatized tissues and re-growth of endothelial covering takes place rapidly, though the difference is one of degree rather than one of type. The healing mechanism is decidedly better than that displayed by the untreated control, in which the traumatized surfaces adhere and heal by the formation of firm adhesions."[7]

Daily reports, of course, cannot be made on the human subject and clinical reports are difficult to obtain and difficult to evaluate. In the last five years it has been used on several thousand humans. In the last year we have used it in 11 cases but the time element is still too short and the cases too few to give anything more than one's impressions. All of these cases to date have remained free of the symptoms that led to operation or reoperation. We have observed in these patients a smoothness of convalescence with very little nausea and vomiting and very little distention. Two recent cases are of interest. (40152 and 40174.) The first case is one of a woman of 53 for whom I did a hysterectomy over two years ago. Symptoms referable to the fibroid disappeared but her general condition was poor and a year later, March, 1932, was readmitted to the hospital. Much weight had been lost due to anorexia and vomiting. Belching of gas, epigastric distress and pain between the shoulder blades were prominent symptoms. General emaciation and moderate lordosis of the spine made the abdominal aorta and coeliac axis easy to palpate and her physician had sent her in with a tentative diagnosis of abdominal aneurism. Laporotomy showed extensive adhesions and general visceroptosis. Gall bladder of the lipoid type had extensive adhesions between its whole length and the duodenum. All adhesions were freed and gall bladder was removed. All the surfaces where adhesions were found were treated with calendula cerate and the wound closed. Nausea and vomiting post-operative were moderate

and convalescence in the hospital was fairly comfortable. She returned to her home in a neighboring city. However, her health did not improve for long and soon a miserable train of symptoms were back again, no appetite, epigastric pain, vomiting. She was readmitted to the hospital in September and treated for three weeks. She improved for a time but never felt really well. Constipation was constant and she suffered irregular attacks of severe distention, simulating obstruction. She was admitted again April 7th. Her weight had gone from 154 pounds to 84 pounds. X-ray still showed the severe ptosis and emptying time of stomach was markedly delayed and elimination very poor. There appeared to be pressure from a tumor mass in the upper right quadrant upon the stomach and duodenum. Operation again showed massive adhesions under both previous scars also a matted mass of adhesions between old liver bed and duodenum and marked angulation of one section of ileum. Normal continuity of the ileum was established without resection. 250 cc of amfetin instilled per catheter and syringe and wound repaired. Convalesence was entirely satisfactory with very little discomfort. Normal bowel action occurred on the sixth day for the first time in six months. Report on the 17th of May states that she is feeling splendidly, gaining weight and strength, and that she looks and acts like a new woman.

The other case, Number 40174, is a seventeen-year-old girl. She had been operated for right inguineal hernia in 1929 and appendectomy in 1930 at the Rhode Island Hospital. For the past two years she has suffered epigastric pain with nausea and vomiting. Several X-ray series had been made and two different men diagnosed duodenal ulcer. Later work ruled out ulcer and chronic cholecystitis with adhesions was the pre-operative diagnosis. Operation showed dense adhesions to the abdominal wall, pulling on the gastro-colic omentum. Stomach and duodenum were normal as was the gall bladder. Gastro-hepatic omentum was abnormally short and traction of the lower adhesions, I believe, caused her symptoms. These adhesions were freed and 250 cc of amfetin were instilled. To date she has been entirely free from pain and is gaining weight. I realize how recent these cases are and the series is but 11. But the impression I have is that there is value in the use of amfetin and that it should be given time to be proved.

The causes of death in biliary surgery are most frequently peritonitis, pulmonary complications including embolism, hemorrhage, usually associated with hepatic insufficiency and cardio-renal failure. Every effort should be made to estimate the functional ability of the important organs previous to operation and to take steps to improve deficiencies. Surgery of this type should be studiously avoided in the presence of colds, pharyngitis, and coughs. Damaged hearts should be studied and appropriate measures instituted for cardiac support.

Judd[7] reports a mortality rate of 2% in 656 cholecystectomies and cholecystostomies last year and 4.7% for 170 operations on the bile ducts. In the latter group the rate is 10% where strictures and fistulas involving reconstruction procedures are placed in a separate group. I have had two cases of pulmonary embolism in the last 30 operations and they have had 3 cases in last year's series of 656. Judd believes that definite measures can be taken to maintain a low incidence of pulmonary embolism. Walters noted in 1925 that the thyroid cases rarely developed embolism and he advised the use of thyroid extract following abdominal surgery to stimulate metabolism and blood flow. Also they believe in deep breathing exercises, early movements of the extremities and early turning of the patient from side to side. Now they are studying blood flow by means of an instrument called the Geiger counter and hope to devise other means to prevent thrombosis and embolism. Judd also feels that the greatest advance of the past year has been recognition of points connected with liver cell damage following intense jaundice. "The recognition of the existence of hepatic injury of severe extent prior to operation is generally possible by observation of the bilirubin content of the blood and of the persistent elevation of the coagulation time of the blood." He also stresses the grave significance of the Paris Green liver. The presence of this Paris Green liver with white bile in the ducts has been predicted repeatedly by the associated medical men at the Mayo clinic primarily by watching the billi rubinemic variations. These curves in variation are of significance before operation for "disproportionately high level of billi rubin indicates severe hepatic injury and increased surgical risk. Moderate or low levels may indicate a state of stabilization during which surgical procedures are well tolerated."[8] After operation variations in the level upward may indicate the necessity for more vigorous treatment. Among the outstanding requirements of pre-operative treatment of these jaundiced patients are a high carbohydrate diet,

transfusions of blood and intravenous administration of solutions of glucose and calcium chloride.

Summary

1. The surgeon operating on a small series of biliary cases a year should follow the more conservative practices both as to length of stay in hospital and as to drainage.

2. The use of amfetin should be given further trial with the hope of stimulating a more satisfactory peritoneal defense.

3. Surgical technique is of importance and each surgeon should aim to perfect this phase of his work, but I am of the opinion that of even greater importance is the necessity of a more thorough preoperative study with the possibility of making finer diagnoses and recognizing ahead of time certain risks that may be encountered. Much of the laboratory work is conflicting and certainly it is not infallible, but these reports can be considered as showing a trend. Measures can then be taken to improve the trend if necessary and guide the surgeon in the work to be done.

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SOCIETIES

The Rhode Island Medical Society

The regular quarterly meeting of the Rhode Island Medical Society was held at the State Hospital for Mental Diseases, Howard, R. I., Thursday, Sept. 7, 1933, upon the invitation of the State Public Welfare Commission.

The meeting convened at 11 A. M., at which time there was inspection of the hospital, and a clinic showing methods and results of treatment of general paresis, followed by clinical and pathological demonstrations. Luncheon was served at 1:30 P. M.

At 2:45 P. M. the Society was called to order by the President, Dr. Chas. S. Christie.

In the absence of Dr. Frederic J. Farnell, Chairman of the State Public Welfare Commission, who was unavoidably prevented from being present, Dr. Arthur P. Noyes, Superintendent of the State Hospital for Mental Diseases, welcomed the Society on behalf of the Commission.

It was voted that the reading of the minutes of the annual meeting having been published in its transactions be omitted.

Dr. Roland Hammond, delegate from the Rhode Island Medical Society to the American Medical Association, read his annual report of the proceedings of the House of Delegates of the American Medical Association.

A resolution expressing the approval of the request of the State Public Welfare Commission for funds from the Federal Relief Fund for the erection of new buildings at the hospital was unanimously adopted.

It was voted that the Secretary address a letter to Dr. W. R. White expressing the good wishes of the Society to Dr. White.

The following papers were presented:

1. "Some Present-Day Conceptions of Mental Disease," Arthur P. Noyes, M.D., Supt., State Hospital. Discussion by Drs. Harrington and Ruggles.

2. "Demonstration of Commoner Forms of Mental Disease," members of Staff, State Hospital.

3. "Outline of History, Present Work and Needs of State Hospital," Arthur P. Noyes, M.D., Supt.

It was moved and seconded that the President appoint a committee of five to confer with Dr. Noyes, Superintendent of the State Hospital for Mental Diseases, to determine the needs of the hospital and to report to the Society at the December meeting. It was so voted.

The President announced the appointment of the following Board of Classification whose duties will be to classify, in accordance with the suggestion of the Committee on Cost of Medical Care approved by the House of Delegates, the members of the Rhode Island Medical Society into their various specialties or chosen field of medical practice:

Dr. Wm. O. Rice,
Dr. Fenwick G. Taggart,
for 3 years
Dr. D. L. Richardson,
Dr. N. S. Garrison,
For 2 years

Dr. John Champlin,
Dr. N. M. MacLeod,
for 1 year

A rising vote of thanks was extended to the State Public Welfare Commission, to Dr. Noyes and his staff for their hospitality extended to the Society. Adjourned.

Respectfully submitted,
J. W. Leech, M.D., *Secretary*

The Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. James W. Leech, Monday evening, October 2, 1933, at 8:55 o'clock. The records of the last meeting were read and approved. The secretary read a notice of a meeting of the Rhode Island Section, American Chemical Society, on October 12 and a letter from the Surgeon General regarding the publication "Venereal Disease Information."

The Standing Committee having approved their applications, the following were elected to membership: Drs. E. Joseph Bernasconi, George F. Conde, John H. O'Brien, Nicholas A. Pournaras and Jacob P. Warren.

The President announced the death of Dr. Parnell E. Fisher, and appointed Drs. Pearl Williams and Herbert G. Partridge as obituary committee. The President spoke of the plans of the Federal Government to provide medical care for those on the emergency relief rolls and it was voted that he appoint a committee of five to consider fee schedules and to prepare for putting these plans into effect. The committee appointed were:

Dr. Charles F. Gormly, Chairman
Dr. W. P. Buffum
Dr. B. H. Buxton
Dr. W. S. Streker
Dr. Rocco Abbate

The first paper of the evening, by Dr. Frank A. Cummings, was "The Colon as a Focus of Infection." He spoke of the anatomy and physiology, pointing out that the coecum, ascending and transverse colon had an absorptive function and the descending colon sigmoid and rectum expulsive. Examination should be done by X-ray, using the opaque meal and then enema, sigmoidoscopy and feces examination. He felt that stasis resulted in absorption of bacteria and toxins and delayed digestion and that hepatis cholecystites and infections of the genito urinary tract resulted from colonic disturbances. In treatment he reduces carbohydrates to a minimum and does not consider bulk important. Local treatment consists in saline enemas and irrigations using several quarts of water given in small amounts followed by medicated fluids and the instillation of acidophilus cultures. The paper was discussed by Drs. Bray, Hammond and Cummings.

The second paper was "Primary Carcinoma of the Lungs," by Dr. Isaac Gerber. This is now found to be a common form of cancer, its frequency being placed as high as 6½%. Irritation apparently is important as a cause. Much of it is highly malignant. The growths in the outer portions of the lung are amenable to surgery but about 90% is centrally placed. The changes resulting in the lungs are such as occur with other conditions as distal emphysema, atalectasis, empyema or pleuritic fluid. Cough, pain, hemoptysis, dyspnea and loss of weight occur. X-ray and bronchoscopy sometimes with biopsy are the chief methods in diagnosis. The important thing is to have it in mind when studying lung conditions. The treatment is by surgery, at times with radiation, usually giving better results sometimes by radium implantation but preferably in most cases deep radiation. The paper was discussed by Drs. Isaac Gerber, DeWolf, Boyd, Kiene, Kramer.

The meeting adjourned at 10:50 P. M. Attendance 85. Collation was served.

Respectfully submitted,
Peter Pineo Chase, *Secretary*

The Ophthalmological and Otological Society

The R. I. Ophthalmological and Otological Society held its Annual Meeting on Thursday September 14th at the Ledgemont Country Club, Natick, R. I.

There was a good attendance of members. Guests of the Society were Drs. I. Gerber, Charles O. Cooke and Eliot A. Shaw.

After an excellent dinner the business meeting took place. Routine business was transacted and the following were elected officers for the year 1933-34: President, Dr. Robert C. O'Neil; Vice-President, Dr. Nathan A. Bolotow; Secretary-Treasurer, Dr. Gordon J. McCurdy. Member to Standing Committee, Dr. Herman Winkler.

The members and guests enjoyed a pleasant social hour after the meeting.

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ORIGINAL ARTICLES

SOME PRESENT-DAY VIEWS CONCERNING MENTAL DISEASE*

By ARTHUR P. NOYES, M.D.

Superintendent of the Rhode Island State Hospital.

Like the views concerning other branches of science the conceptions concerning mental disease have passed slowly through various stages of evolution. Although Hippocrates did not believe there was anything occult or mysterious about mental disorders this glimmering of a rational approach to their nature was eclipsed by the intellectual darkness of the middle ages with their mystical conceptions of the phenomena of these disorders. During the nineteenth century the constant discoveries concerning the anatomy and physiology of the brain led many workers to believe that the techniques of these sciences would reveal the nature and causes of mental disorder. Gradually it became appreciated that neither that behavior which, because usual and socially acceptable, we call normal nor that behavior which for pragmatic reasons we call abnormal, can be reduced to terms of organic change in the brain as indispensable as is the soundness of that organ for the integrity of personality functions. Since the early part of the present century it has come to be recognized that other lines of approach are necessary. With an increasing appreciation of the role of psychological factors and processes there arose the tendency to regard the great bulk of mental diseases as psychogenic. The past twenty-five years have revolutionized our ideas on psychopathology which has contributed more to an understanding of mental disorders than has any other branch of knowledge. A growing recognition, however, of the unity of behavior, of the integrative functions of the organism and the increasing appreciation that the study of human behavior should be approached from the standpoint of the natural history of a thinking, feeling and striving organism in relation to an environment that in its most significant aspects is social in nature, has shown that a wider viewpoint makes possible a more comprehensive understanding of mental disorder. Not content to be confined in its scope to an investigation of disturbed brain psychology or to psychological processes arbitrarily abstracted from the real unity of experience of the individual, but concerned primarily with the behavior of the human organism engaged as a unitary system in adjustment to its environment psychiatry has become a branch of biology.

Perhaps a word as to the way in which psychiatry contrasts with certain other branches of biology may be helpful. Anatomy and physiology are divisions of biology that deal primarily, not with organisms as a whole, but with the structure and operation of organs and their constituent protoplasm. Through integration, as its function of effecting an orderly and harmonious unification is technically known, the nervous system constructs these organs and their functions into a resulting unity known as the organism. This new unity or organism, however, possesses new biological qualities and modes of activity not possessed by its component organs, among them being such ones as striving, perceiving, thinking and feeling. The branch of biology which deals with these new qualities and properties as manifested by the human organism, i. e., with human behavior and human nature, is now often known as psychobiology, a more accurately characterizing term than is that of psychiatry since it indicates the psychosomatic unity of the human organism and regards the individual as a biological whole. Viewed in this way the reaction of parts of the organism would be designated as physical while the term mental would be employed as a collective designation for all those activities and phenomena that result when the organism functions as a whole and that represent the product of interactions between it and the environment.

The comparative anatomist and embryologist have shown us the genetic continuity of organic structure, have shown that the highly complex anatomical structure of man is the evolutionary outgrowth and refinement of simpler structures

*Read before the September meeting of the Rhode Island Medical Society, 1933.

adapted to a more restricted environment. To the psychiatrist the psychic element exists in every biological organization while the evolutionary development of the mind, like the evolutionary process in organic structure, is one of continuity and the highly differentiated psyche of man is derived, not from an original nonpsychic element but from a less differentiated psyche. Mind or adjustive behavior may be considered as passing through such successively larger patterns as tropism, reflex, instinct, conditioned response, and intelligence culminating in the self-conscious human psyche. This ascending mental series has been evolved in an effort of organisms to secure the optimum adjustment to the environment. Human behavior, then, or the expression of mind in man, both that which we call normal and that which we call abnormal, represents a psychobiological attempt to secure a satisfying adjustment to life conditions.

With the constantly expanding patterns of behavior, with the remarkable capacity for adjusting to, and even for control over the environment attained by man the thought suggests itself that the problems of adjustment had finally been surmounted. Man, however, has become a social animal and therefore, unlike lower organisms, must adjust to the pressures of a social environment with its insistence that the drives, interests and objectives of man's biological organism be subject to the claims of the larger, the social organization. For countless ages tendencies and behavior patterns serving the needs of the individual and the race were woven into the organism where they attained almost the fixity of structure itself. When, therefore, a new environment, the social one, with its new values and new pressures, arose, a fresh problem of adjustment was thrust upon the phylogenetically acquired tendencies and patterns of the organism. It is from an attempt of the organism to meet these conflicting demands that much of what we call mental disorder has arisen. These disorders represent the failures of the organism in its effort to secure a working adjustment between the conflicting claims for its energy utilization.

Because of their fundamental phyletic importance it may be suggested that the instinctive or innate action-pattern responses of the organism that contribute either to the preservation of the individual or to the preservation of the species are the sole elements that may be irreconcilably at variance with the pressure of the social environment to which adjustment may be possible only through such a disorganization of the personality that it is called psychotic. It is undoubtedly true that clashings between these older, inherent aspects of the organism on the one hand and the values, beliefs and habits which through constraining social forces have become organized into the personality on the other hand are the ones that act most frequently in this manner. A concept of conflict as one of the factors leading to the failures of psycho-social adjustment that we designate as mental disease should not, however, be limited to a clashing between instinctive tendencies and the socially created desire to respect and conform to the mores and desires of one's group. It should include all the antagonistic tendencies of the personality and any dilemma in which the individual is impelled by mutually conflicting forces and demands.

Slowly but with rather remarkable ingenuity the organism has evolved structural and functional devices for effecting an adjustment to the complexities and stresses of its physical environment but not yet has it evolved equally as stable and uniformly advantageous means of adjusting to the more recently imposed social environment and the problems and conflicts it creates. The organism has, nevertheless, evolved various methods by which it strives to establish or maintain equilibrium among the conflicting tendencies of the personality, promote the emotional comfort of the individual, maintain his self respect, obtain a feeling of security or gain a satisfactory recognition for himself. These methods occur so frequently and follow such systematized techniques that they are known as mental mechanisms. These mental mechanisms do not represent isolated activities of definite psychic instrumentalities but rather the reaction of the whole organism in its efforts to elaborate its psychobiological purposes. These adjustmental devices or mechanisms are of various types, such as repression, rationalization, compensation, symbolization, displacement, projection, regression and dissociation. Many of them are employed to variable degrees but within socially tolerable limits by every individual. Within these limits they often serve useful purposes, repairing certain defects of personality, giving direction to psychic energy and making us more comfortable by their self-defensive processes.

A short time ago I spoke of human behavior, both normal and abnormal, as representing a psycho-

biological attempt to secure an adjustment to problems within and pressures without. The factors involved may in varying degrees be physical, emotional, instinctive and social but they constitute the conditions which an organism—the human organism—must meet and deal with. The behavior of the psychotic can thus be best understood if we learn to think biologically as regards the mental patient. I do not mean, of course, in any such narrow sense as the condition of his tissues alone, although their condition help to determine the assets and liabilities of the personality, but in terms of the life history of the patient as a thinking, feeling organism confronted with life conditions for which the usual personality resources are, from a psychosocial standpoint, inadequate.

In some such way should we look upon one of the commonest forms of the major psychoses—dementia praecox. This disorder is usually to be looked upon as a new but maladapted socio-biological adjustment to subjective problems and demands. The factors that determine this maladapted adjustment are complicated psychobiological forces which are specific and peculiar to each patient. Only through a careful analysis of the personality and its evolution, of an equally detailed study of the concatenated life events, of the subjective experiences of the individual and his progressively unhealthy psychobiological reactions are the causes of the dementia praecox type of psychosis to be found, its manifestations understood and its psychological connections discovered and reconstructed. Among these factors are intra-psychic conflicts, insistent but consciously rejected demands of various instinctive drives and urges, feelings of guilt or of insecurity, as well as various other long-standing, troublesome problems and frustrated purposes. In addition to these specific factors we often have to do with a complicated personality imperfectly organized and inadequately prepared for the life experiences to be confronted, inclined to give up the struggle with reality, manifesting evasive and substitute ways of meeting problems, and tending to secure satisfactions, not from the real world, but from a subjective world of the individual's own making, produced through phantasy, delusions, hallucinations and other maladjustive methods. In no other disorder of the personality (by personality is meant that organization of constitutional, affective, ideational and conative or volitional capacities and tendencies which characterize the individual)—in no other disorder of the personality is there such a tendency for a disturbance in testing reality. In the organism's efforts to solve its problems, express its needs and secure some sort of satisfying adjustment it sacrifices its capacity for distinguishing between what is real and what is actually such projected subjective material as strivings, wishings and repudiated aspects of the personality.

If time permitted I would present the summary of a case to illustrate how a progressively unhealthy psychobiological reaction may finally culminate in a dementia praecox form of adjustment in which reality is falsified and subjective material projected or externalized as objectively real. In view, however, of lack of time let us pass on to another form of personality reaction that may arise when the organism is confronted with certain physical and psychological factors,—a reaction which we know as involutional melancholia. Can a broad biological, or rather psychobiological, point of view assist in a fuller understanding of such a disorder? As you know involutional melancholia occurs most frequently in women during the late forties and in men during the late fifties, the period when the endocrine and reproductive glands begin to suffer a decrease in functional activity. As the activity of these glands declines there are extensive changes in the chemical, metabolic and vegetative activities of the body. Just what part these changes in essential physiological functions play in the genesis of the psychosis is uncertain, but in view of the fact that there is a unity of psyche and soma (not merely an interdependence) we must conclude that they are important. Stress should not be centered upon these physical factors alone, however, for there are undoubtedly important personality and psychological factors that contribute to the distinctive picture of affect, conation and idea to be described later. In a significant number of cases of involutional melancholia we find a certain general type of personality make-up and pattern of life. A review of the patient's previous personality and temperament often shows that he has been an inhibited type of individual with a tendency to be serious, rigid, lacking in humor and overconscientious. Often his routine of life has been narrow, somewhat stereotyped, and devoid of diversions. Frequently he has been a loyal subordinate, meticulous as to detail, rather than an aggressive confident leader. Adjustments to new situations and circumstances are no

longer easily made. Perhaps life had not brought either the success or satisfaction that hope had cherished. At this period the more or less consciously formulated realization that early dreams and desires cannot now be fulfilled, that the zenith of life has been passed, that ambition and life's forces are waning, and that the opportunity no longer exists for repairing old errors or achieving new successes wounds the ego and leads to depression. The transition to another stage of life is not easily made. Regrets and a sense of failure contribute to the prevailing mood. Acquired compensations begin to fail. An ebbing potency in the male and the realization of the woman that her most highly prized biological possession, that of childbearing, perhaps long frustrated, is now a lost capacity, is for the patient more than the loss of one of the most fundamental of functions—it is a symbol that both the sources and ends of energy have failed. As the flush of maturity fades thoughts of death are suggested and contribute to the anxiety so common in the disease. With the decrease of physical strength unconscious forces, old conflicts and complexes become relatively stronger and return to threaten and torment. Their menace to the ego is ceaseless and since the source of the danger is hidden and within, any escape from it is impossible, with the result that the apprehension, tension and unrest of anxiety are intensified. In a certain number of cases retirement from business means the renunciation of long-cherished interests and a withdrawal of psychic energy. It is not surprising, therefore, that in the event of some disturbing experience, such as the breaking-up of the home, the loss of position, or the death of one upon whom dependence was felt, that the psychosis with its pathological depression, apprehension, ideas of death, and nihilistic and hypochondriacal delusions should be precipitated.

A concrete case will illustrate this type of reaction:

E. M., a single woman of the early fifties, was admitted to the State Hospital following a suicidal attempt. As a child she is described as shy, sensitive and affectionate. Although as a young girl she attended dances she was never known to have had any male friends. She always said she wished to "live alone and not be bothered by a man's company." After coming to America from Ireland at twenty-three she secured employment as a domestic. She seems to have been well regarded by her employers to whom she became quite attached and with whom she usually remained for many years of continuous service. She was described as always employing all her spare time in "doing little things about the house, darning stockings, cleaning something and doing ironing." She was conscientious, likable, ambitious and affectionate, but stubborn and difficult to convince. She was carefully observant of what she considered to be her religious duties and attended church regularly.

On arrival at the hospital her facies denoted fear and apprehension. Although agitated she supplied the usual admission data and when asked if she were married she at first replied in the affirmative, but a moment later stated that she was not married. Shortly afterward when seen in the ward the patient repeatedly inquired if the place were a jail. Upon being asked the reason for such a question she replied, "Because jail is the safest place. I hope I don't be killed." She became increasingly anxious, agitated and apprehensive, and on the day following her admission the patient attempted to thrust her head through a closed window. Whenever a physician entered the ward she approached him, repeating constantly with but little variation, "I am afraid, Doctor. Oh, my God! I am afraid of those men upstairs!" (There were no men in that section of the building.) "Look at those big snakes! Look at those big dogs!" The patient had always lived frugally and had methodically deposited her savings in a bank where she had accumulated several thousand dollars. She maintained, however, that her money was all lost and that she was destitute. Several days after her admission the patient was brought before the staff for diagnosis. At that time she showed the same anxious depression and agitation that had characterized her entire hospital residence. Soon after entering the staff room she asked if the door leading to an anteroom where patients of both sexes were waiting were locked. When asked the occasion for the question, she replied, "I am afraid of the men." Although consciousness was entirely clear she was so intensely preoccupied subjectively that she gave the year as 1920 (acutally 1930).

Many of the factors that resulted in this woman's psychosis are comparatively simple and evident. She was brought up in a strict and illiberal environment that contributed to a repression of normal biological sexual trends. Gradually she built up a defense designed to prevent any recognition of her repressed trends, as betrayed by her statement that she did not want to be "bothered by a man's company." She became a faithful, conscientious servant, scrupulous as to detail but with an increasing limitation of external interests. Matters continued in this simple but hardly satisfying manner until physical capacity began to decline. The fact that life had not brought all that was desired became more or less vaguely realized, as well as the certainty that strength was waning and that whatever life had not already brought could never be attained. As physical energy declined with the involutional changes the repression of material that had formerly been maintained, although with difficulty, began to fail. With their repression weak-

ened, instinctive tendencies which had always been scrupulously denied any conscious recognition began to threaten from within. With no escape possible anxiety, depression, fear and apprehension followed. This fear was projected as one of men, since it was the patient's repressed interest in them of which she stood in fear. This sense of danger was rationalized as one of threat to life while affective and subjective material came to possess the vividness the patient had always associated with sensory experiences with the result that she heard voices saying she was to be killed. Doubtless the patient's anxiety and depression represented much more than a weakening in the repression of instinctive tendencies of a psychosexual nature; the approach of an age when physical vigor and means of livelihood were declining, a sense of isolation, vague feelings of disappointment and of failure, and perhaps of guilt, all contributed to a sense of insecurity that added to the affective tension and apprehension.

It will thus be seen that we must not think of involutional melancholia as a circumscribed disease entity resulting from clearly defined bodily changes but rather that we have to do with an individual attempting to deal not only with somatic changes that disturb the organism but with most intimate and perturbing problems that these changes entail or foreshadow, as well as with gnawing conflicts and crampings of personality that have tormented for years. This is the reaction of an organism to a total life situation,—a complex situation containing many elements highly charged with emotion. When we survey the personality make-up of this woman, the prepsychotic life pattern that had characterized her for years, and finally the psychosis itself, we recognize that we are not dealing with a definite disease entity but with the behavior of an organism struggling in vain in the face of danger to its physical integrity and of threats to the personality from instinctive, emotional and other psychological sources. It is a matter of reaction of the whole organism, not merely a question of something physical or something narrowly psychological. And when the whole organism reacts in an integrated behavior expression we deal with biological or rather psychobiological phenomena.

Although toxic and structural factors do not in a majority of mental disorders play an important part in their production, yet unless the organism is intact at the physical, chemical and physiological levels its operation at the psychobiological level or level of personality functioning may be impaired to a varying degree. Disturbances in narrowly biological aspects of the organism may determine disorders of a larger psychobiological organization. In the organic psychoses there is frequently not merely an impairment of cognitive functions, as manifested by clouding of consciousness, amnesia, and a reduction of mental stock and capacity, but there is frequently a weakening of higher integrations with the result that fundamental undercurrents in the personality are revealed and tend to disturb social adjustment. In the toxic-organic psychoses there may be not only a dementia but an exaggeration of former personality and character traits, a breaking-down of former repressions or a loss of inhibition of primitive urges. Because of its disturbance at the organic level unadjusted aspects of the personality may easily be projected or profoundly influence motional states. Even those psychoses, then, in which organic factors so largely participate frequently cannot be fully understood without a study of the prepsychotic personality.

Viewed in the way that I have tried to indicate the great bulk of mental disorders represent psychobiological adjustment-methods—methods, however, which tend to destroy social assimilation. For this reason the symptoms are not abnormal functionings of unitary faculties but are really psychobiological reactions or expressions of the total organism at the mental level. Symptoms, then, are specific and intimate life-revealing signs and have but little meaning apart from the setting in which they have developed. To be understood they must be studied developmentally, the life history of the patient retraced and their relevance to the problems and purposes of the personality be ascertained.

Since mental disease is a personality disturbance with social implications, the problem is to ascertain the factors that have determined the interactions between the individual and his environment, and to ascertain how these interactions, in turn, have influenced the personality and further disturbed its adjustments. Just as the life process itself is not an entity but a synthesis of countless complex reciprocal activities, so behavior, whether normal or psychotic, is the resultant of innumerable complex structural, physiological and psychological factors, the latter including instinctive, affective, conative and other subjective components, many of which are reciprocal in their influence. Adequate diagno-

sis, prognosis and treatment require that the physician should not be content with describing and classifying the manifestations of pathological mental reactions but that he should discover the meaning and significance of the psychopathological behavior and determine its function in relation to the goals of the personality. Symptoms should usually be looked upon as surface phenomena and one should attempt to discover what lies at the root of them. This will require a detailed study of the personality and its evolution, as well as a careful investigation of somatic factors. The physician integrates and co-ordinates the data secured from the biological, psychological and other fields of inquiry, and in the light of all the information thus obtained he attempts to formulate his conception of the patient's psychosis by analyzing and reconstructing in their dynamic relationship the factors that have been operating in its productions—in other words, he approaches the study of the patient's life reactions by what may be called a psychobiological technique.

DIAGNOSIS AND TREATMENT IN TWO CHILDREN WHERE A QUESTION OF EPILEPSY IS RAISED*

By Harold F. Corson, M.D.,
163 Bowen Street, Providence, R. I.

The two cases to be presented have been examined and treated by the staff of a community Child Guidance Clinic. In both instances the referring physician recognized the psychiatric implications and doubted the existence of idiopathic epilepsy. Both children have been seen by a number of physicians in the community. In this paper the question of diagnosis and the question of treatment from the point of view of the Child Guidance Clinic will be discussed. No attempt will be made to consider any of the theories of epilepsy or the nature of the disease itself.

From the point of view of diagnosis the greatest difficulty has been the lack of an accurate description of the attack. In both instances the parents were of average intelligence but their accounts were confusing. You will note that in both instances treatment with drugs had not been satisfactory, and in one case symptoms were intensified.

*Read at the Annual Meeting of the Rhode Island Medical Society, June 1, 1933.

The two cases will be reported without further comment.

Case I. Alice, born in May, 1922, was referred to the clinic at the age of eight. The immediate problem was "fainting spells." The referring physician felt that these spells were due to nervousness, and he had been unsuccessful in alleviating them by the use of the usual drugs.

It was reported that patient was well until February, 1930, when she began to have convulsions. Her first one occurred at nine o'clock, about two hours after she had gone to bed. In these spells patient always cried out beforehand and seemed to know that the spell was coming on. Her hands and feet became stiffened and her eyes had a glassy stare. She frothed at the mouth and bit her tongue, was unconscious, and during this time wet herself. These spells usually lasted a few minutes and afterwards the patient seemed dazed. They always occurred in the house, usually at night or before arising in the morning.

The only event which the parents can in any way relate to the beginning of the spells was an accident which occurred in 1929, when she broke her arm. She was out of school for six weeks and on returning was placed in a B division instead of in an A division. This upset her very much and she thought the teacher was picking on her and was favoring a friend.

The mother took the patient to physicians, one of whom suggested that the spells might be due to stomach disorders, and the other treated her for worms.

In March, 1930, she was seen at a hospital clinic and luminal was prescribed. The spells decreased to one in two weeks, and during the summer to one in five weeks. However, the physicians felt that the spells might be due to nervousness and did not wish to give a definite diagnosis unless they saw the child in a spell.

In May, the grandmother entered the picture during the mother's illness and the patient was seen by a neurologist who made a diagnosis of "probable idiopathic epilepsy." The patient was not returned to this physician because of the family's financial condition.

The patient has been described as a quiet, sensitive, affectionate child who worried a great deal about the home conditions, such as the father's unemployment and the mother's ill health. She tried to help the mother as much as she could,

played well with her brother and sister, was generous and would share anything she had with her friends. Before her spells she seldom cried, but since then, she has been irritable and peevish, often crying over some trivial incident. Since the onset of her illness, she has not played well with other children, is easily annoyed by them and has cried frequently.

The family history does not seem to be of particular importance. The father is well; however, has been employed only irregularly. The mother can be described as a pleasant young woman who has had a series of operations because of a gynecological condition. On neither side of the family is there any history of epilepsy, mental disease, or any serious physical illness.

There were two younger children in the family who have developed normally and who present no particular problem.

The mother was well during the pregnancy and birth is described as normal. Health and developmental history was not unusual. In October, 1929, patient broken her arm and in February, 1930, she had her first spell.

Her school progress was normal and work was of good quality until after the fracture.

The patient was first seen at the clinic in July, 1930, and a *physical examination* revealed no findings of outstanding importance.

The *psychological examination* showed that the girl had average intelligence.

At the time of the first visit the following comments were made: The attacks for which patient was referred appear to be of a functional nature. They usually show excitement or nervous stimulation of some kind; e. g., one attack occurred at the time when she was anticipating her birthday party. Also, her attacks have not been relieved by medication.

The nature of the attack is further substantiated in considering her personality, the outstanding characteristics of which appear to be jealousy of her younger brother and a marked attachment to her parents, her constant worries, and her extreme sensitiveness.

The case is to be treated as that of a neurotic child whose attacks appear to help to bind her more closely to her parents.

Medical treatment of any kind was discontinued. The parents were instructed in the management of the attacks, with particular effort to prevent the child from feeling different. Unnecessary tension and causes of concern were to be reduced to a minimum. Group activities were to be encouraged.

September 15, 1930—The parents described one attack which occurred in the first part of August at five o'clock in the morning. Patient called for her father. By the time father arrived she was having jerky, convulsive movements. The eyes rolled and the mouth was wide open. From his description no tonic or clonic phase of the convulsion could be made out. Patient wet the bed but did not bite her tongue. After the attack the patient went to bed and seemed to forget the whole thing. The parents state that before an attack one arm feels funny, but nothing else in the nature of aura could be elicited.

September 22, 1930—Further investigation clarified a few points. The mother insisted that the major attacks did not have any relation to excitement or to disturbance of routine. There have been night terrors on a number of occasions which have not been associated with any convulsive movements. At this time the patient was started on sodium bromide in small doses.

In *October* there were several "hollering spells," as the mother described them, which occurred during the night. It was possible to make some readjustments in school and to modify the patient's attitude toward her school work. However, it was not entirely possible to control the situation—for example, she was taken on an excursion by one of the relatives who gave her a very exciting time. That night and the following morning it was necessary for the mother to keep the child in the house and away from the other children as the patient was cross and unmanageable.

In *January, 1931,* father reported that on the whole things were going well and there had been no recurrence of attacks. The mother had been sick and had had a serious operation, but the patient was not upset by this.

At that time the father was very much interested in knowing just what the patient's condition actually was. He was told that it was the physician's opinion that it was a case of epilepsy from the descriptions that had been given; and the fact that the attacks had been relieved by comparatively simple measures did not seem to rule out this diagnosis.

In *March and April, 1931,* there were a number of attacks. These occurred at night. She would

usually call her parents. They would go at once, but were not able to give an accurate description of what actually happened. In these attacks she did not bite her tongue and did not wet her bed.

Her school work had become increasingly difficult since the middle of January, 1931, the patient was more sensitive and cried more easily than she had for some time. No upsetting factors could be discovered.

The attacks, as described by the parents, were not typical of epilepsy; but their description could not be relied upon. The patient's disturbed sleep might be a reflection of her poor adjustment. The mother's health is undoubtedly a matter of concern and the father has as yet been unable to get work.

In *May, 1931,* the patient was seen and had had no recurrence of attacks for three weeks. Her sleep was better. The mother, in talking about the previous series of attacks, stated that she had eased up on the medication and it was either this or the fact that she had been thrown in marked competition with some other children during the vacation period that had precipitated the seizures.

The patient was seen the latter part of *June, 1931.* On the whole her school year had gone very well. The father stated, however, that patient had been having some attacks which seemed to be related to excitement. It is difficult to determine from his description whether the attacks were epileptiform or of a neurotic origin. According to his most recent description, the father states that patient calls out while she is shaking, but this shaking cannot be definitely stated to be an epileptic seizure.

In spite of the fact that it had been possible to make some progress with the patient the actual nature of the spells could not be definitely ascertained. It seemed evident that some of her difficulties, at least, were due to psychological factors. At the same time, it seemed possible that we are also dealing with an epileptic condition. The girl's personality, which has already been described, was fertile soil for the development of a neurotic reaction. During the time we had seen her the general family situation had not improved but we had seen that the patient's condition had. The bromid therapy had been, under the circumstances, irregular, and we felt that the greater part of the improvement could be ascribed to the psychiatric treatment.

The patient was admitted to the Bradley Home in the summer of 1931 for study and during her stay there, typical epileptic seizures were observed. Dr. Bradley stated that the girl was put on a ketogenic diet. This treatment was continued for almost a year and there has been a complete dropping out of the spells.

In analyzing this case we feel fairly certain that we had been dealing with an epileptic condition which was masked, in part at least, by neurotic manifestations. Treatment in the Child Guidance Clinic was able to effect certain gains, but it was necessary to go a step further before the spells could be brought under control.

Comments. In reporting this case it has never been possible to get a clearcut description of one of the seizures. Some of the spells were certainly in the nature of night terrors. Others were very definitely epileptic seizures. The parents' descriptions have varied from time to time and they have often contradicted themselves. The child was living in a decidedly difficult home situation, which certainly tended to upset the child who was inclined to worry and to take things seriously.

There had also been a personality change which seems to be correlated with the breaking of her arm in October, 1929. This was evident in her jealousy of the younger children, her inclination to take the responsibilities of the parents on her own shoulders, her preference for her parents rather than other children, and her extreme sensitiveness to any criticism. The onset of the seizures followed this change in personality but need not necessarily be correlated with the breaking of the arm.

Very little has been said about the child's own thoughts. In the clinic treatment attention was centered about her difficulties in school and the difficulties of her parents with suggestions as to how they were to be met. In school improvement was obtained by getting her to reduce the time of study and increase her play activities.

It was not possible to learn anything of interest about the "night terrors" or to get from her any description of the attacks that had occurred.

She was an excellent patient, responded well to suggestion, and could undoubtedly have been treated more effectively if she could have been seen oftener and if the medical treatment could have been controlled more closely. There was, however, a difficulty in this on account of the frequent upsets in the home and other interferences.

The description of the attacks has always been inadequate. The father did not until June, 1931, describe any tonic phase to the convulsions, but has

usually spoken of what might be termed "shaking spells." During this phase the shoulders, arms and legs jerked slightly "but not hard enough to shake the bed." At times the patient has wet the bed, but this did not occur very often. The main feature in some attacks was a rigidity that lasted three or four minutes. At times there had been a frothing of the mouth, but this was not usual.

Case II. Martha was born in May, 1925. She was referred to the clinic in December, 1928, because she was having spells in which she seemed terrified and in which she complained of dizziness. During these spells she became very stiff, her eyes were set, but she was said not to lose consciousness. She was irritable on slight provocation and had tantrums when crossed. The mother was seen on one occasion and an interpretation of the child's problems, in terms of habit training and emotional development, was given. The mother did not accept this explanation and was unwilling to work along these lines. During the following period she saw several physicians who made diagnoses of epilepsy or chorea, but treatment on this basis was not successful and in fact appeared to intensify the attacks. The mother returned to the clinic in September, 1930, and the account of the case dates principally from that time.

The father was thirty-six years of age, of American birth, had been employed as a machinist but at that time was temporarily employed as an unskilled worker. The mother was thirty-one years of age and of English descent. Her physical health was good but she was a high-strung, sensitive, quick-tempered woman, and felt much anxiety as well as irritation about the patient.

The home was comfortable considering the financial circumstances of the family. The father was devoted to his home; the mother was much more sociable and liked to go out much more than the father.

The patient's personal history is as follows: The mother was well during pregnancy. The patient was a full term baby and delivery was normal. Development was normal until the age of three, when patient fell downstairs. After that time she frequently complained that everything was going around and at this time stiffened and screamed with fear.

When patient was first known to the clinic she went to bed late because she was often taken out by the parents in the evening. She would occasionally awaken in the night and demand that her mother stay with her. She was a light and restless sleeper. Her appetite was finical.

The patient was an attractive child. At first she was rather shy, but according to the mother, she is willful and irritable at home. The mother believed that the patient was much spoiled by the maternal grandparents who lived nearby.

When examined in September, 1930, she was underweight and her teeth were in extremely poor condition.

The neurological examination was negative. Subjectively the patient's complaints centered around her dizziness and sweating.

The psychological examination indicated that the patient had normal intelligence.

Treatment was started in September, 1930. We note, according to the mother's account, that several physicians had diagnosed the condition epilepsy or in one case St. Vitus' Dance, and treatment for these conditions had resulted only in an intensification of the attacks. On the other hand, several other physicians had felt that the condition was essentially neurotic in nature. The mother herself was determined to find a physical foundation for the spells and was rather certain that the condition was epilepsy. At this time the mother particularly stressed the child's fears and listed them as follows: Fear of riding in an elevator, fear of climbing stairs, fear of circle games, fear of looking twice in the same place, fear of things tipping over, fear of taking medicine prescribed by doctors, etc. At this time patient was practically confined to the house because of the fear that something might happen if she left.

The mother, in repeating her story, stressed the fact that the patient might have injured herself by the fall on the stairs. According to her, the child's reactions were normal up to this time. The mother also said that there was no loss of consciousness or any scalp wound. Following this accident the patient complained of dizziness. The patient has had spells without loss of consciousness in which she has thrown herself on the floor, has become extremely frightened, or has at times screamed. Other problems presented by the patient were: Poor sleep, temper tantrums, sweating, nervousness, excessive dependence on the mother, shyness, and too ready tears.

It appeared necessary that the examination of the physical condition go forward as slowly as possible in order that we would have time to work out some of the evident problems. The mother was

urged to place the child in the kindergarten with the view of decreasing the child's dependence on her. Points of over-stimulation were sought. Whenever possible the patient was given an opportunity to show her independence.

The patient was seen in *September, 1930*. Neurological examination was impossible because she was shy, reticent, fearful and very babyish in her manners. An attempt was made to get some objective evidence regarding her complaints of dizziness. On being turned half-way around she became panic-stricken, complained of dizziness, and observations were impractical because of the child's panic, fearfulness, and clinging to the mother.

An X-ray of the head was obtained at the Rhode Island Hospital and this was negative. The main value of this was temporary relief for the mother. The mother's next concern was related to an intestinal attack. She felt that the child had worms and that this might explain the dizziness. Stool examinations were obtained and were found to be negative.

September 17, 1930—The mother was able to get the patient to the clinic by offering a bribe of an ice cream cone. The child preferred to climb the five flights of stairs rather than to ride in the elevator. Since the patient was last seen there have been two spells in which she had cried and screamed. During this time her eyes had had a far-away look in them. The mother describes two types of spells—a major type in which the patient is not divertible, and a minor type in which the mother can gain her attention. There is no indication from the mother's statement that there is any loss of consciousness or any actual convulsive movements.

The mother reported that the patient had started in kindergarten and it would appear that for the first time the child had developed some interest outside of herself. The kindergarten teacher had been prepared for possible spells but there was no difficulty.

The mother was worked with regarding a more desirable program for the child, with particular emphasis on a regular routine and avoidance of over-stimulation. At this interview the patient was more easily handled than on previous occasions but as soon as an attempt was made to turn her about, she became alarmed and began to cry loudly. It was difficult to quiet her and the morning was spoiled for anything else.

In *October, 1930*, the mother had been satisfied that the child did not have worms but was concerned about a cold. The patient had made marked progress in her kindergarten work and at this time could turn around without becoming dizzy. The mother stated that sleep had improved and that her irritability had decreased as had her fears. The patient was still afraid to ride on the elevator but did not mind coming up the stairs. She was playing better and at this interview it was possible to whirl her around without any complaints of dizziness or fears.

January, 1931—Treatment had been progressing moderately well but a physician who was seeing her for her underweight suggested that Martha was slightly epileptic and treated her on this basis, but that treatment which was excellent in its way only resulted in an increase of the symptoms.

In *February* the patient had a slight dizzy spell at school but it was well handled by the teacher. Patient had been very much keyed up by the school program and the mother, on her part, had tried to force the child's pace; for example, the teacher had sent home a list of nineteen words that she was to learn in three weeks, but the patient stayed up far past her bedtime in order to learn them that night. The latter part of February the physician previously mentioned became convinced from the description of the case that the attacks were epilepsy and a ketogenic diet was ordered. This diet worked out well for a short time. Patient gained slightly in weight, but the result was that she then refused all food and it was necessary to stop this treatment.

The mother was also alarmed about the fact that the patient was developing from a bashful, shy little girl into a more aggressive type. The patient could now look people in the face when she met them and was no longer afraid of being frowned at or spoken to. In fact, this was an encouraging trend but the mother felt that it was an attempt on the part of the child to override her authority.

The situation in the family was interesting. As a result of clinic advice that the child should not be taken out at night with the parents, the father stayed at home with the child and played with her, apparently enjoying himself, while the wife was somewhat scornful of his interest in childish activities and proceeded to go out and enjoy herself.

In *June, 1931*, the patient was taking part in active games and playing outside for the most part. The mother reported that she was impudent and obeyed only when she was good and ready. There had been one spell since April and from the account

this was a screaming attack which followed unusual excitement and fatigue.

In the family situation there was a good deal of jealousy between the parents for the patient's attention. The father was inclined to feel that the mother was responsible for the patient's condition, and the mother on her part that the father's spoiling had resulted in the child's undesirable behavior. There was conflict about the older boy but this was not so marked.

In *June, 1931,* the patient rode in the elevator for the first time as mother was unable to climb the stairs. The family situation appeared to be a complicated one and we had to be very cautious about going into it. The mother had made it clear that she did not want the father to come to the clinic and we felt it necessary to respect her wishes. We recognized the neurotic trends of the mother with particular reference to an ambivalent attitude, that is, at times she showed a strong irritation and dislike for the child and at other times she showed an excessive fondness for her. The mother, on her part, apparently felt that if she could find a physical basis for this child's illness, she would not be subjected to criticism by her husband and friends.

At this time the question of sending the patient to Bradley Home was discussed with the mother. The question of whether or not the girl had epilepsy had not been definitely decided in the mother's mind. It was only the possibility of further study that made it possible to induce the mother to part with her child even for a short time.

According to the report from the Bradley Home, the patient spent an uneventful period under their care and there was no indication of paroxysms or seizures of any description during this time. Throughout her entire observation she was a very good patient. She was described as a pleasant, well-mannered, neat and jolly child who was somewhat inclined to be timid.

After her return home, however, patient went along very poorly and the mother, when seen, was overwhelmed with the problem with little energy to continue her fight. She was disturbed about the fact that patient had had no attack while in the Bradley Home and that when she returned to her own home there was immediately a series of attacks, five in all.

The description of these attacks would not in any way suggest an epileptic condition. The mother still differentiates between the major and minor attacks by the child's divertibility. The attacks were marked by an increased agitation on the part of the patient with no loss of consciousness. There was wringing of the hands, crying, sweating, flushing and tears. After the attack patient was listless and did not feel like doing anything for a long time.

The mother seems to be extremely fond of patient, but at the same time is very impatient with her and feels that the child is a great responsibility and at times a nuisance. There are times when the mother and patient enter into long arguments about trivial matters. The mother showed a marked tendency to prohibit many things, some of which did not seem to be of importance.

The patient's fears for the most part had disappeared, although a few remained. It would appear that after her return home it was necessary to start from the beginning, but there had been certain gains, in that the patient herself was more reasonable and somewhat quieter.

October, 1931—The patient was very talkative and gave a better account of herself than in any previous interview. She volunteered the information that she was trying not to have any more spells. The mother, on her part, had regained some of her poise and work with her was continued.

November, 1931—The mother complained of increased irritability on the part of the child. She remarked that she herself was very impatient with the child, in contrast to her husband who accepts the patient rather easily. Her husband continues to feel that she is too strict. At this time the patient was becoming better able to put into words some of her own problems.

January, 1932 — The mother, among other things, spoke very well of the conduct of the boy and wishes that the patient could be more like him. She seemed to consider many of the patient's demands as deliberate attempts to annoy.

A recent attack occurred following a very exciting event. The mother had taken the girl to the wake of her god-father. Strange as it may seem, this event, with the evident bad effects on the patient seems to have been a turning point in the case and the mother finally accepted the child's actual condition. From that time until the present there have been no attacks.

We have kept in touch with the mother from time to time and she feels that at present the patient is adjusting well and that there is no reason for further clinic attendance. From our point of view we would be inclined to feel that the mother herself presents further problems that might be dealt with now that the child is no longer the focus of attention.

The patient, on her part, had adjusted well in school and on the playground. For the time at least the question of attacks appears settled. It seems very probable that the situation may lead to further difficulties although for a number of months everybody has felt that superficially a good adjustment has been achieved.

These two cases present in some detail the difficulties that may arise in establishing or disproving the diagnosis of epilepsy in younger children and suggest the importance of a comprehensive treatment plan where usual procedures are not successful. These cases are not presented because they are unique but on the other hand because they involve the common problem of "spells" in children.

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EDITORIALS

THE RHODE ISLAND MEDICAL JOURNAL felicitates the *Providence Journal* upon its first step towards a new home. We claim kinship with the *Providence Journal*. Although not a medical journal its columns have always been most sympathetic in its interest in all matters of public health and welfare. Through its innumerable articles upon medical matters and through its daily column of notes and queries upon medical subjects the *Providence Journal* has led all other newspapers which have taken similar duties upon themselves and brought its department to a very high plane of educational medical propaganda. Our kinship is all the more complete because of the fact that most of its medical material is by members of our own editorial staff who thereby feel the pulse, as it were, of both professional and lay public. To the *Providence Journal* therefore is due unbounded thanks for the high plane of medical ethics and thought which its pages offer and for its kind attitude towards the best in medicine and the cardinal principles of hygiene. We fully appreciate that the *Providence Journal* brings knowledge of health to millions who might not be reached in any other way. We are proud of this association and shall

look forward with most pleasurable anticipation to the successful completion of this new home and to the time when we may again offer our congratulations.

SURGICAL RELIEF FOR CARDIACS

There have lately appeared in the literature several articles dealing with a new and radically different adjunct to the treatment of a class of patients in whom results of traditional therapy are most discouraging. We refer to extirpation of the thyroid in cardiac decompensation and intractable angina pectoris. The theory is that even when the basal metabolism is normal, thyroidectomy will lower it and thereby lessen the demands upon the failing myocardium. Ample physiological evidence has been adduced to show that when the basal demands are low, even a markedly impaired circulation is sufficient to meet the body requirements. No clear cut explanation of the relief obtained in angina pectoris, however, has as yet been brought forward, although some theorizing as to possible reflex effects and interrelation of thyroid and adrenal functions has been attempted.

To date the most impressive work on this subject has been that of Levine and Cutler*, whose summary of a small series with detailed case reports has recently been published. Their patients were all extremely bad cardiac cripples, in whom any measure, however radical, if it offered the slightest chance of relief, was deemed justifiable. Their results, while far from miraculous, are nevertheless remarkable in view of the truly desperate condition of the cases under consideration. While it is doubtful whether the operation has prolonged life in any of the cases reported, it is certain that it has made the remaining period of life more endurable for a considerable proportion of them. In one or two instances, indeed, it has rehabilitated for a time a hopelessly bedridden cardiac cripple, stubbornly refractory to all of the usual forms of treatment.

To most of us this procedure seems radical if not heroic. To many of us the reports may appear to be colored by the enthusiasm of the authors. But none of us can sidestep the point that the patients themselves report amelioration of symptoms. Nor can we wholly discount the word of such eminent authorities on the grounds of radicalism and enthusiasm. Granted that the procedure is still in the experimental stage; that many questions remain to be answered regarding the complicated physiological effects involved; that the proper selection of cases is still a matter of doubt,—granted all these things, there remains the fact of the clinical results thus far obtained.

Let us therefore be hasty neither to condemn nor acclaim this new addition to our armamentarium, but consider it thoughtfully and await with interest its further development, remembering that most of the surgical procedures common today were once considered radical and realizing that "without change there is no progress."

* Levine, Cutler, & Eppinger: N. E. Jour. Med. 209:667 (Oct. 5, 1933).

MEDICAL SOCIAL SERVICE

"The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants and the externals co-operate." Well over two thousand years ago we find this recognition that the duty of the physician does not end when he has examined and prescribed medicine for his patient; he must see to it that the factors which contributed to the occurrence of the disability are remedied or removed, that those caring for the patient do so adequately and well, and that the surroundings of the patient subsequently are such as to help him to maintain health. We are very prone to lose sight of the fact that the practice of medicine includes all these activities, and we have, from time to time, delegated some of them to non-medical assistants. Thus the actual care of the sick man is largely in the hands of well-trained nurses who work under the direct supervision of the physician, and who tremendously lighten his load. More recently, the care of the "externals" has been delegated to social service workers, first formally recognized by Dr. Richard Cabot. A letter referred to in these columns last month illustrated the unwarranted assumption of authority that may result from our present policy of exercising little or no supervision over these workers. There is no reason why the social service worker, in her field, may not become of as great value to the physician as is the nurse in hers; but it must be clearly recognized that this work is a part of medical practice delegated for the sake of conserving the physician's time and energy, and that as such it must remain under the

direct supervision of the physician. There is a growing tendency on the part of lay workers with an interest in social problems to instruct the medical man in his work; the most elaborate example of this in recent times being the majority report of the Committee on the Costs of Medical Care. It behooves the physician to remember with pride the long heritage of his profession and to assume that position of leadership to which he is entitled. Those who seek to direct him base their advice upon the experience of years which he can match with the accumulated experience of trial and error covering as many centuries. But this very experience has taught him humility for, in the language of the aphorism with which we began, "Life is short and the art long; the occasion fleeting; experience fallacious and judgment difficult."

OBITUARY

Winthrop Allen Risk, M.D.

Born in Groveland, Mass., March 2, 1869. Attended the public schools in Groveland and Lawrence, Mass. He entered the Harvard Medical School in 1888 and graduated 1893, after taking a four years' course. During the fifth year he was house surgeon in the Free Hospital for Women in Boston, Mass.

From 1893 to 1905, while engaged in private practice in Providence, he was assistant surgeon in the Department of Gynecology at the Rhode Island Hospital.

He served as Superintendent and Physician of the Rhode Island State Home and School from 1905 to 1916, when he resigned to resume private practice.

In 1918 he was made Captain, Medical Corps, U. S. Army, and became assistant to the Commandant of the Base Hospital at Camp Devens, Mass.

From 1919 to 1929 he was Major in the Medical Reserve Corps, U. S. Army.

He was a member of the Providence Medical Association for many years and served as Treasurer for 19 years. He was Treasurer of the Rhode Island Medical Society for 10 years and served as business manager of the Rhode Island Medical Journal for four years.

In 1922 he was appointed resident physician of the District of Columbia Tuberculosis Hospital in Washington, D. C., which position he held until the time of his death.

During his residence in Washington he was a member of the faculties of Georgetown University Medical School and of the George Washington University Medical School.

He died May 1, 1933, in Washington, D. C.

He is survived by his widow, Mrs. Wilhelmina MacLean Risk, and by two daughters, Mrs. Dorothy Risk Barnes, wife of Lieutenant Elmer E. Barnes, Corps of Engineers, U. S. Army, and Mrs. Marjorie Risk Davison, wife of Major Donald A. Davison, also of the Corps of Engineers.

Dr. Risk was a faithful, loyal friend, and a man of rugged honesty. He fulfilled well the duties of the several important positions to which he was appointed or elected.

Resolved: That a copy of these resolutions be presented to the family of Dr. Risk, and that they be written on the records of the Providence Medical Association.

John M. Peters, M.D.
George S. Mathews, M.D.

Parnell E. Fisher, M.D.

Parnell Ellis Fisher, a member of the Providence Medical Association since 1897, died at his home, 195 Waterman Street, Providence, on September 16, 1933, after an illness of three months, from arterio-sclerosis, diabetes mellitus and cerebral thrombosis.

Dr. Fisher was born February 12, 1868, in Wyoming, R. I., the son of Samuel Schuyler and Sarah Hall Fisher, being descended from Rhode Island and Massachusetts Colonial stock.

He studied at Wilbraham Academy, and entered Yale University, from which he was graduated in 1891. He was graduated from the College of Physicians and Surgeons in Columbia University in 1894, and immediately entered the Rhode Island Hospital as interne, serving two years. Upon the completion of his interneship, he engaged in the general practice of medicine, opening an office on Smith Street, in Providence. He remained there for more than twenty years, subsequently removing to Waterman Street in this city.

He served as visiting physician to the Rhode Island Hospital from 1904 to 1919, when he became a member of the Consulting Staff. He was also visiting obstetrician to the Providence Lying-in

Hospital from 1910 until his resignation in 1927, when he was elected a consulting obstetrician. He was also for many years visiting physician to Dexter Asylum, holding that position at his death. In addition, he was connected with St. Vincent's Orphan Asylum, the Homeopathic Hospital and the Miriam Hospital. He was a member of the American Medical Association, the Rhode Island Medical Society, and the Amos Throup Club. He was a Mason, a member of St. John's Lodge. He was a charter member, and the only president, of the Mt. Tom Club.

Dr. Fisher was a man much beloved by his patients, and most highly respected by his professional brethren, both for his personality and for his medical knowledge, which as a result of his wide hospital experience, in different fields of medicine, was very extensive.

He was a most kind hearted and sympathetic man though withal most modest, doing many deeds of charity which were known only to his most intimate friends.

Dr. Fisher is survived by his widow, the former Mary Frances Creamer, a daughter, Dorothy, a brother, Deering J. Fisher, D.D.S., and a sister, Miss Mary R. Fisher.

P. Williams, M.D.
H. G. Partridge, M.D.

SOCIETIES

Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. James W. Leech, Monday evening, November 6, 1933, at 8:50 o'clock. The records of the last meeting were read and approved. The Standing Committee having approved their applications, the following were elected to membership: Drs. George Wickliffe Webster, Ernest J. Quesnel, Casimir Joseph Miga, Amedeo N. Mastrobuono, Arthur Edward Hardy, Charles Peter Earley, Edna Gerrish Dyar and John Joseph Donnelly.

Dr. Gormly made a report for the Emergency Relief Committee. An obituary on Professor Frederic P. Gorham was read by Dr. Alex. M. Burgess, one on Dr. Winthrop A. Risk by the secretary and one on Dr. Parnell E. Fisher by Dr. Pearl Williams. It was voted to spread these on the records, send copies to the family and to the Rhode Island Medical Journal. The President announced the death of Dr. William R. White.

The first subject of the evening was "Reports from the Allergy Clinic of the Rhode Island Hospital." These were based on the study of 108 patients seen in the clinic from 1930 to 1933 inclusive. 32% of these had a history of eczema and 59% a family history of allergy. 61% had extrinsic causes, that is, agents from outside the body, 25% intrinsic, as infections, and 14% had hay fever, that is, nose and throat disturbances. 67% showed sinusitis by X-ray and all had eosinophilia. Dr. Stanley Freedman summarized results of skin tests showing that the largest number of positive reactions came from food, but the most severe reactions came from pollen, especially the summer group of grasses. Subsequent retests showed the pollen group most amenable to treatment, they being specific in their sensitivity. Sedimentation tests showed a rapid rate in severe cases.

Dr. William P. Buffum outlined the specific treatment. In about half the cases the cause was apparently found and where a specific substance was incriminated removal was attempted with desensitization if necessary. With mixed cases the treatment was less definite in result. Results in general are good, less than 20% not showing improvement.

The papers were discussed by Drs. McCurdy, Charles Gormly, William Hughes, William Jordan and Freedman.

The second paper was on "Injuries to the Coccyx," by Dr. Henry McCusker. These cases have been found disabling and difficult to relieve. After demonstrating the anatomy he reported seven cases, in five of which injury was shown by X-ray, and surgical removal gave relief. Dr. Hammond discussed the paper.

Dr. Charles Bradley reported a case of basilar skull fracture in a child. This was discussed by Dr. Ruggles.

The meeting adjourned at 10:55 o'clock. Attendance, 130.

Collation was served.

Respectfully submitted,
Peter Pineo Chase, *Secretary*

Pawtucket Medical Society

List of officers of the Pawtucket Medical Society elected in March 1933.

President	J. Lincoln Turner, M.D.
Vice-President	Henry J. Hanley, M.D.
Secretary	Albert L. Vandale, M.D.
Treasurer	Byron U. Richards, M.D.
Councillor	Charles F. Sweet, M.D.

Delegates to R. I. Medical Society

Earl J. Mathewson, M.D. Charles Holt, M.D.
Charles Farrell, M.D.

[We regret that the recent receipt of this notice makes its belated publication admissible.—Ed.]

HOSPITAL NOTES

Rhode Island Hospital Interns Reunion

On September 15 and 16, for the first time in its sixty-five years of conspicuous public service, the Rhode Island Hospital held a reunion of its former interns. During this sixty-five years almost four hundred men have received their practical medical and surgical training in this internship, and well over three hundred of them are still living; almost two hundred of them attended the reunion.

The reunion started on Friday, September 15, with operative clinics by the various services and with ward rounds by the non-operating services. Coincident with these activities, clinical demonstrations were presented in the Peters House as follows:

Two cases from the Pediatric Service, Dr. Harold G. Calder; treatment of skull fractures, Dr. Charles McDonald; encephalitis lethargica, Dr. Harvey B. Sanborn; cardiac clinic, Drs. Frank T. Fulton and Cecil C. Dustin; oxygen therapy, Dr. Alex. M. Burgess; perforated peptic ulcer, Dr. Anthony Corvese; appendicitis at the R. I. H., Drs. Charles O. Cooke and Murray Beardsley; tumor clinic, Dr. B. Earl Clarke and Dr. G. W. VanBenschoten.

Following luncheon in the Aldrich House, the main scientific program was presented by visiting former interns as follows:

The Story of Infant Feeding, Dr. Elmer W. Barron, Professor of Pediatrics, Tufts College Medical School, Boston.

Pericarditis with Effusion, with special reference to Diagnosis, Dr. Carl J. Geiger, Assistant Professor of Medicine, Syracuse University, Syracuse.

Demonstration of X-Ray Pictures of Suppurative Pericarditis Associated with Empyema, Dr. Carl M. Robinson, Chief of Surgical Service, Maine General Hospital, Portland.

What may be expected of the Roentenologist in Diagnosis and Treatment of Intrathoracic Neoplasms Dr. John T. Farrell, Jr., Assistant Director, X-Ray Department, Jefferson Hospital, Philadelphia.

Peroral Endoscopy as an aid in the Diagnosis and Treatment of Pulmonary Diseases, Dr. Edward C. Goldcamp, Youngstown; remarks by Dr. Harold G. Tobey, Instructor in Laryngology, Harvard Medical School, Boston.

The Use of Intramuscular Injections of Liver Extract in the Treatment of Anemia, Dr. William P. Murphy, Instructor in Medicine, Harvard Medical School, Boston.

The Upper Urinary Tract During Normal Pregnancy, Dr. John S. Lewis, Youngstown.

Surgery of the Gasserian Ganglion, the Ninth Cranial Nerve, and the Sympathetic Nervous System, Dr. Max Minor Peet, Professor of Surgery, University of Michigan, Ann Arbor.

On Friday evening the returning interns were formally welcomed in the name of the Trustees by Mr. Harris Bucklin and by Dr. John M. Peters, who for the past forty-four years has guided the destinities of the hospital. That his work has been and is greatly appreciated was made known by tributes delivered by Drs. H. P. B. Jordan, Arthur Ruggles, and Norman C. Baker; and by the presentation to him by Dr. Bertram H. Buxton, on behalf of the assembly, of a beautiful brass candelabrum. The present interns then took charge of the meeting, and furnished much amusement and not a little instruction by a burlesque of happenings in the accident room.

On Saturday morning there were operative clinics and ward rounds as on Friday. The clinical demonstrations were as follows:

Intravenous Treatment of Shock, Dr. Robert R. Baldridge; Regional Anesthesia and Alcohol Nerve Block, Dr. Wilfred Pickles; Unilateral Exophthalmos, Dr. Harry C. Messinger; Radium Treatment in Cancer of the Cervix, Drs. Herman C. Pitts and George W. Waterman; Organization of the Fracture Service, Dr. Roland Hammond; Treatment of Thigh Fractures, Dr. Albert A. Barrows; Clinical Pathological Conference, Dr. B. Earl Clarke.

In connection with the meeting, an illuminated scroll, signed by all the former and present interns available, was sent to Hon. Jesse H. Metcalf, thanking him for his many services to the Rhode Island Hospital, in particular for his provision of the beautiful Staff Building, the John M. Peters House, and wishing him a long and happy life.

The reunion was brought to a close by one of the justly-famous bakes at the Squantum Club, where good-fellowship abounded and certain impending political changes were clearly foreshadowed. The reunion was a distinct success from several angles: it showed the former interns resident in this vicinity the accomplishments of those

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